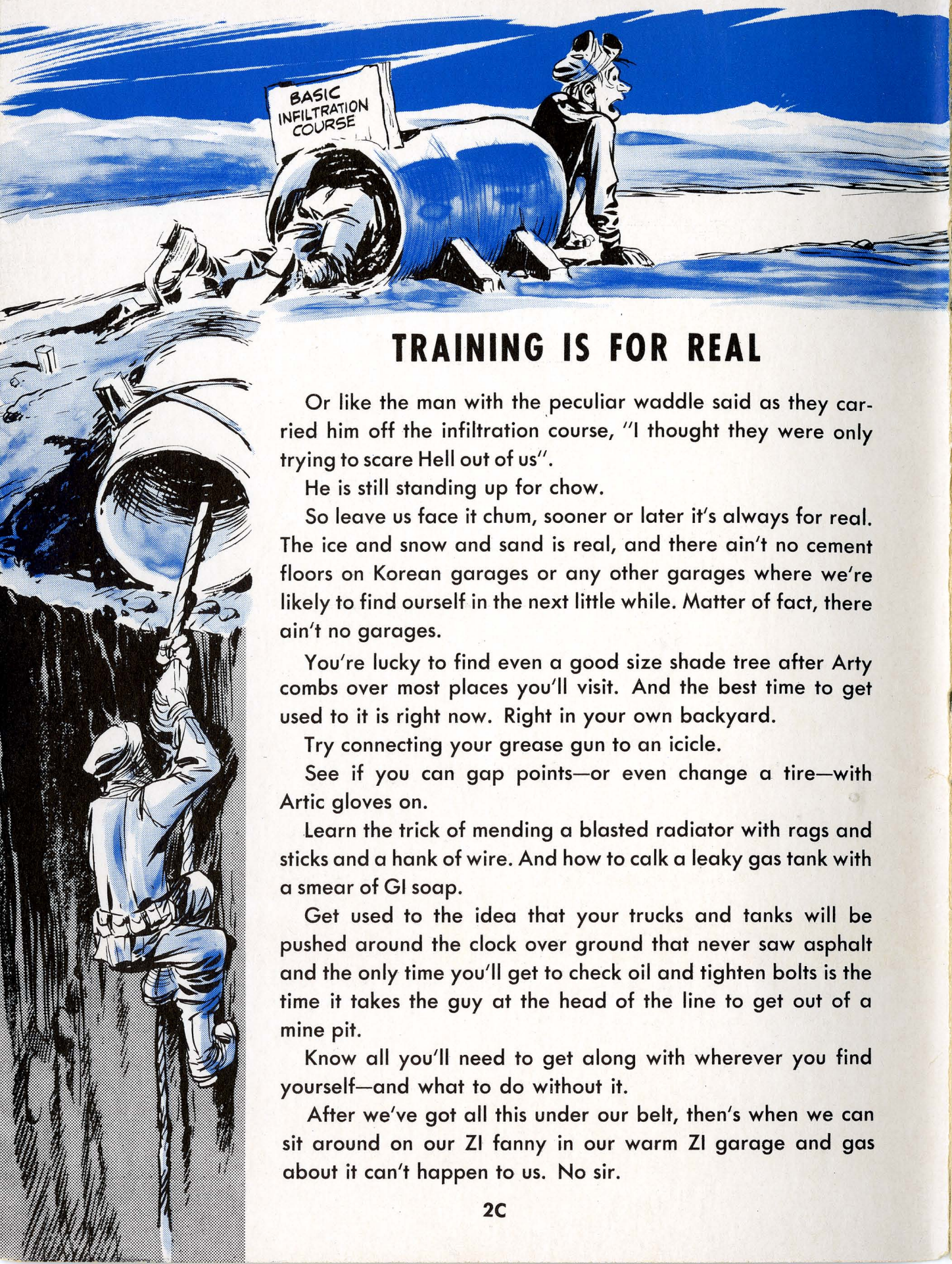
P.S

THE PREVENTIVE MAINTENANCE MONTHLY

AUGUST 1952 NUMBER 8

Dan
RETURN TO
FIRE CONTROL SEC



TRAINING IS FOR REAL

Or like the man with the peculiar waddle said as they carried him off the infiltration course, "I thought they were only trying to scare Hell out of us".

He is still standing up for chow.

So leave us face it chum, sooner or later it's always for real. The ice and snow and sand is real, and there ain't no cement floors on Korean garages or any other garages where we're likely to find ourself in the next little while. Matter of fact, there ain't no garages.

You're lucky to find even a good size shade tree after Arty combs over most places you'll visit. And the best time to get used to it is right now. Right in your own backyard.

Try connecting your grease gun to an icicle.

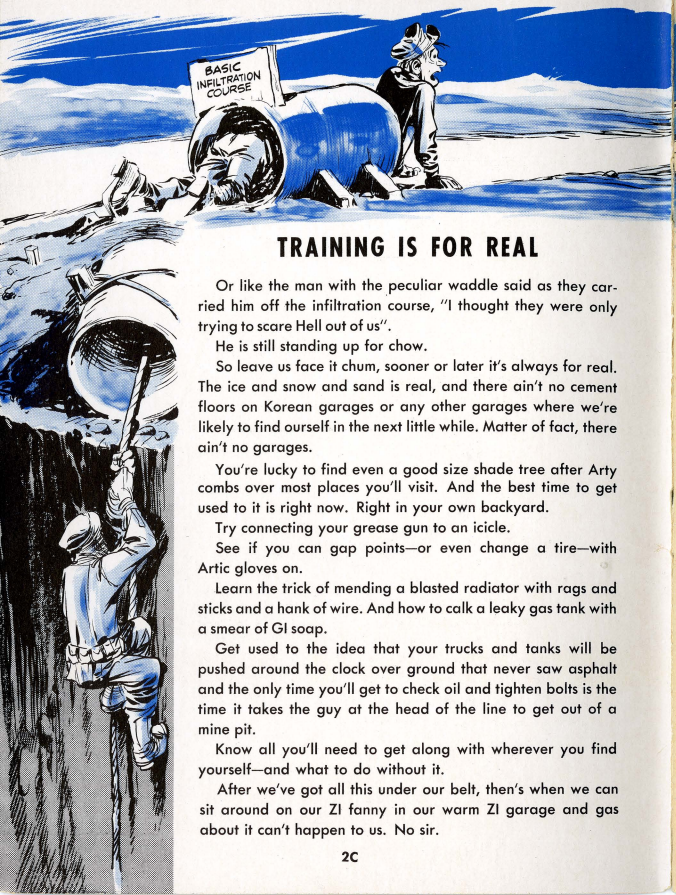
See if you can gap points—or even change a tire—with Artic gloves on.

Learn the trick of mending a blasted radiator with rags and sticks and a hank of wire. And how to calk a leaky gas tank with a smear of GI soap.

Get used to the idea that your trucks and tanks will be pushed around the clock over ground that never saw asphalt and the only time you'll get to check oil and tighten bolts is the time it takes the guy at the head of the line to get out of a mine pit.

Know all you'll need to get along with wherever you find yourself—and what to do without it.

After we've got all this under our belt, then's when we can sit around on our ZI fanny in our warm ZI garage and gas about it can't happen to us. No sir.



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THANK YOU, GENERAL RIDGWAY

The wisest thing, we suppose
That a man can do for his land
Is the work that lies under his nose
With the tools that lie under his hand.

LIFE, quoting General Ridgway

These few choice words express an attitude PS believes is a necessary approach to the military maintenance operation.

It tells all of us exactly what the score is. How we've got to think out solutions for new problems, and be capable of handling the unexpected in old problems.

And ofttimes with less than we feel we need—in time, tools, training, or equipment.

Military maintenance never was a snap. It never will be a snap. And one American advantage over everybody else is our native ingenuity. We can do the job under our nose with the tool in our hand.

Even if it's only our hand.

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COMBAT MAINTENANCE STORIES

SHOOTING IN THE RAIN

Dear Editor,

It was raining in Korea—one of those sudden driving rains that caught us with our guns loaded. When the suspend fire order came through, there was a round in our gun. So we elevated the tube—but neglected to put on the muzzle cover. Came orders to resume fire and instead of the gun going off the way it should have, it exploded, blowing off half the chamber. The tube was OK but was torn off the elevating arc and landed 40 feet away. The wheels stayed in position. No one was seriously hurt but the gunner found himself running 200 feet away. The other three fellows just landed.

The hot tube propably shrunk onto the cold projectile during the time between "suspend-fire" and "resume-fire".

The moral of the story seems to be: Remove that round, or get permission to fire it out before the freeze.

WO Frank Mendonca
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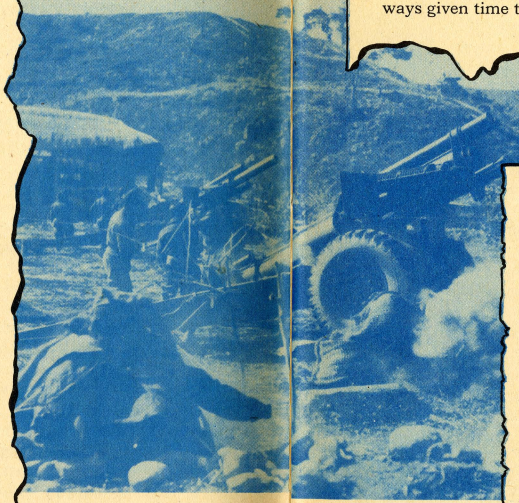

IF WE GOTTA KEEP MOVING—

Dear Editor,

It isn't that we don't know **how** or **what** they need that's the big problem, but how to hold onto those vehicles long enough to **do** the maintenance work. Even holding them for just a little grease job is sometimes considered too much. When orders come down to keep things moving, or the situation is hot, it's the poor vehicle that gets the least attention. Around this outfit we think we know our stuff, but we're not always given time to use it.

SSgt Roger Lambert
Korea

GO EASY ON THE M4 SIGHTS, PLEASE

Dear Editor,

I just got some more M4 sights to repair and can't help taking time out to gripe about it a bit. I wish those guys who handle the 4's would go easy—we're busy enough without the extra work. It's said they're only supposed to be used for training, with the M6 used for business, but we've seen otherwise. The 6's do a fine job and don't need the pampering the 4's do. Sure glad to see them replacing the 4's.

Cpl T. N. Dorrin
Korea

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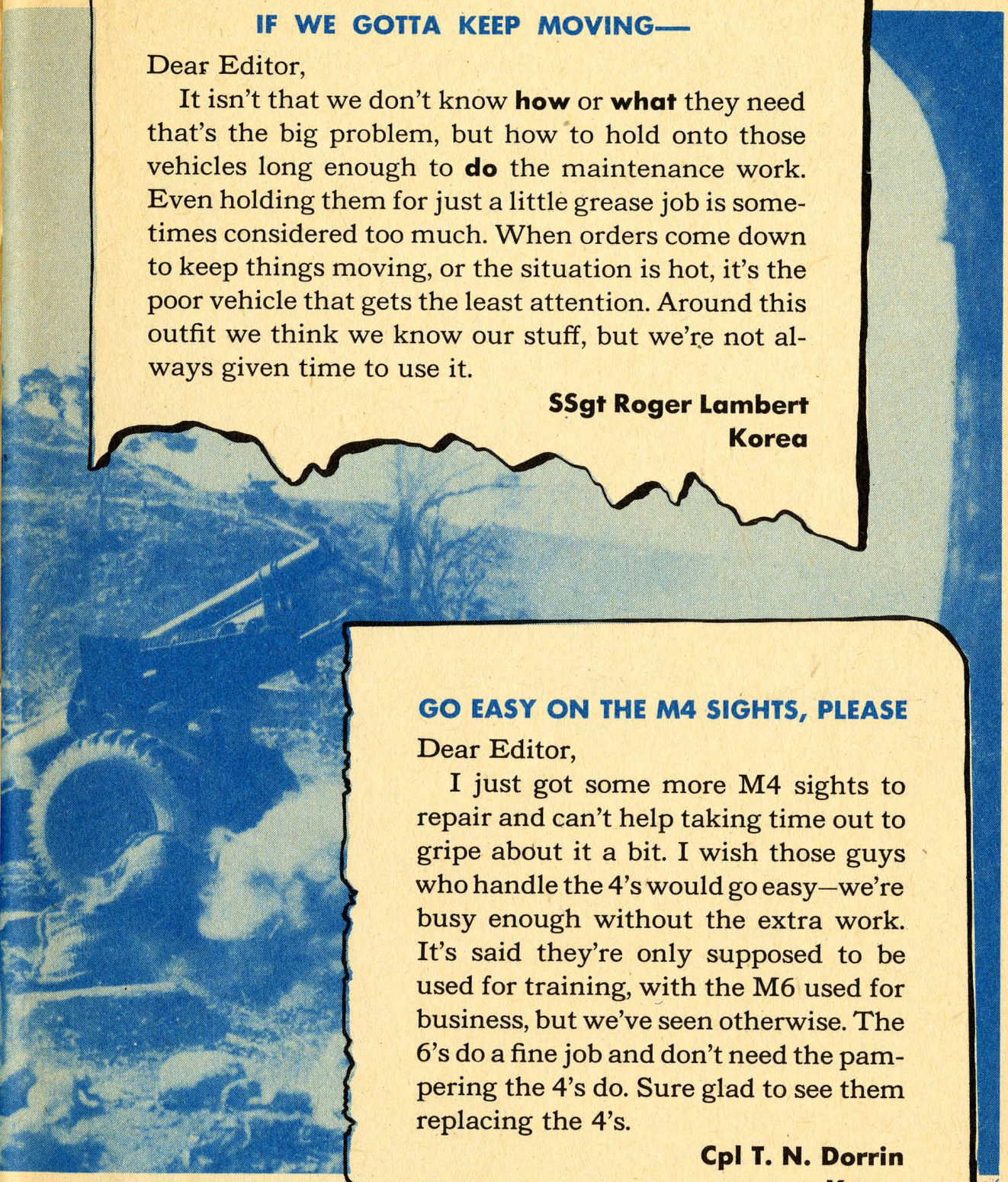

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HEADSPACE ADJUSTMENT

Dear Editor,

Some old war dogs who refuse to learn new tricks are still using the same old headspace adjustment on the Cal. .50 heavy barrel machine gun M2—even when the piece has been modified according to FM-23-65 C3 and MWO A39 W13. In an altered M2 this'll result in space enough for two heads, and a mess of brass particles and hot powder flying in the wrong direction—also leaves you wide open for ruptured cartridges.

If you've got the modified version, it'll have a hole drilled in the right-hand side-plate and the new spring assembly (Spring, Locking Barrel, Stock No. A039-7265115, Part No. 7265115). This spring has a lug on the end which insures a positive lock **whenever the action is closed**—whether the barrel is in or not. Its purpose is to keep the headspace from changing while firing—but it means that when this spring's in place you can't screw the barrel in or out. If you try to use the old method for headspace adjustment now, the barrel won't get past the lug and up to the receiver where the clicks start—and no clicky, no adjustment. Men who've tried forcing the barrel in against the lugs with a wrench have ended up with more than just a hole in their headspace. They're left with ruined and battered barrels.

To do right by the modification is as easy as pulling your retractor handle back about 5/16″ until the lug on the new barrel-locking spring appears in the drilled hole in the right-hand side-plate—and then barrel up. A good way to make this job easier is insert a Cal. .50 metallic link between the barrel extension and trunion block to hold the handle back. Good adjustment, by the way, means no independent movement between the bolt and the barrel extension prior to unlocking the breech.

MSgt Thomas H. Williams
APG, Maryland

The one and only way—the right way

HOW TO OPERATE THE M47 TANK

HERE'S the new, improved method for starting this baby and getting 'er going without running into the old complications.

Before starting . . . when in confined area or whenever the tank commander deems it necessary, station a fire guard armed with a portable extinguisher back near the engine compartment.

STARTING

1. Be sure radio switch is off. (Check to see that all accessories are off at their switches.) 2. Move the manual control lever to neutral (forward) position. 3. Set hand brake. 4. Turn master switch on. 5. Open hand throttle completely or push accelerator pedal all the way down. Turn **starter only** to "ON" position. Keep magneto switch "OFF." Turn engine over at least five revolutions to clear cylinders of excess gas vapor. Then close throttle. (If there's reason to believe **raw gas** or water is in any cylinder, tickle the starter and **feel-out** the engine for hydrostatic lock. When a lock is noticed, remove all plugs and turn over the engine until all liquid is removed. 6. Now advance (open) hand throttle approximately one inch. Switch magnetos to "BOTH" position. Depress "BOOSTER" and starter together to "ON" position. If engine is cold, handprime lightly while engine is cranking. Normally, three to nine strokes are required, depending on the temperature. The lower the temperature, the more the strokes.

When engine starts, release starter switch. As soon as engine gets up to 700 RPM, release the booster switch. Use primer to help keep engine running at constant RPM in cold weather. Never prime unless engine is being turned over.

If engine fails to start after cranking 30 seconds, release starter, booster, throttle; turn off magnetos, and let vehicle sit five minutes. Then begin again from scratch.

If batteries are too weak to energize your master relay, **turn off the master relay switch and start the main engine by means of a slave cable from another vehicle.** (Before cutting juice from another vehicle make sure its engine is running at a high RPM.) **As soon as**

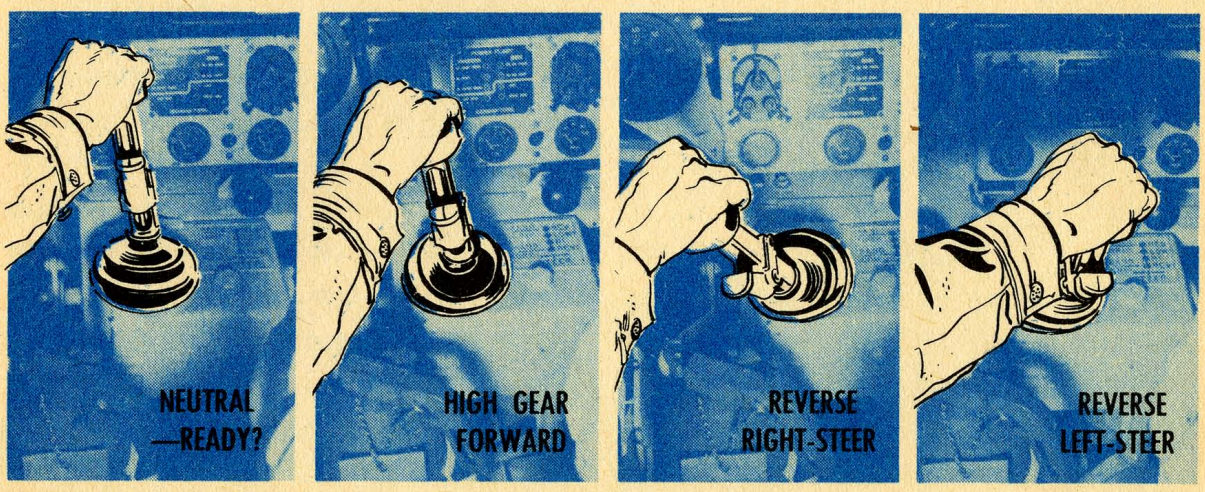
your main engine gets up to 1200 RPM, disconnect the slave cable and then turn on the master relay switch.

If you can't borrow another vehicle, turn off the master switch, turn the auxilliary switch to run, open the auxilliary fuel shut-off-valve by hand and hand-crank 'little joe.' When the auxilliary generator has run for a few minutes and is warmed up, start the main engine and then turn on the master switch. (This'll keep your master relay from burning out.)

AFTER STARTING

1. Adjust hand throttle so engine will run between 1100 and 1200 RPM for about five minutes. 2. Check oil pressure reading on engine oil-pressure-gage. Proper pressure, at operating temperature, using OE 50 in engine is a minimum of 35 psi and a maximum of 70 psi. (When using OE 10, normal pressure at 1500 RPM is 35 to 50 psi.) 3. Engine low-oil-pressure warning-light should go out within 10 seconds after starting. (If warning light comes on at low idle (650 RPM) but goes out at 1100 RPM —everything's normal.) 4. Glance at the main-generator signal-light —it too, should be out. 5. Check magnetos. When engine is running smoothly without misfiring, set hand throttle at 1800 RPM (authorized by TT-36451), then, move main magneto-switch to "F" position and compare the RPM reading with the original 1800 RPM reading. Now move the switch back to "BOTH" position until engine is again running at 1800 RPM (this is to clear the plugs). Then move the switch to "A" position and again note the drop in RPM's from the original 1800. Again switch back to "BOTH" position and come back to 1800 RPM. If a drop of more than 150 RPM's is indicated with the magneto switch at either "F" or "A" position, there's trouble in your ignition system. Do not run engine

KEEP HAND ON TOP WHEN TANK IS MOVING



more than one minute when in "A" or "F" positions.

When engine runs smoothly, close hand throttle completely. The engine should idle at 650 RPM—never have carburetor set to idle engine below 650 RPM.

SHIFTING

Neutral (NEU)—control lever all the way forward and dead center.

Low (LOW)—control lever back one (1) notch from neutral. To shift from neutral into low, squeeze the hand-grip-handle and pull handle back one notch from neutral.

High (HI)—control lever back one notch from low. To move into high **don't squeeze hand grip, simply pull back lever.**

Reverse (REV)—control lever back one notch from high. To move into reverse, **first bring vehicle to a dead stop** then squeeze hand grip and pull back. **Never-never-never-never squeeze the hand-grip when the tank is in motion.** The only time the hand-squeeze-grip is used is when the tank is at a dead stop—that is: while starting off when shifting from neutral into low, when shifting into reverse, and when pivoting.

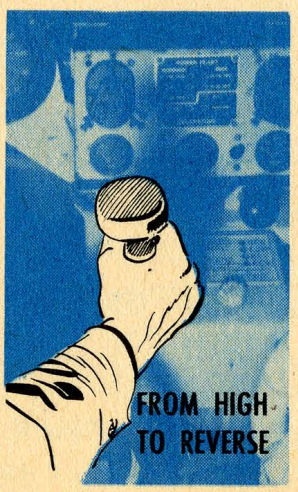
STEERING

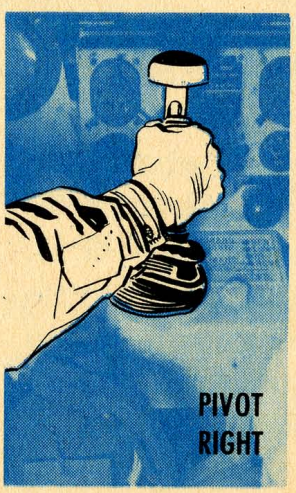
In forward gears: To go left—pull control lever to left; to go right—push control lever to right. When in reverse: To go left—push control lever to right; to go right—pull control lever to left. To pivot—come to a halt and put control lever in neutral position. To pivot left—squeeze hand grip and pull control lever to left. To pivot right—squeeze hand grip and push control lever to right. When steering apply a steady even pressure to control lever—no jerks.

OPERATING ENGINE

Always start off in low range. Never pump foot throttle (this is hard on the oil-cooling fans). Another DON'T is never operate below 1700 RPM in high range. If

NEVER SQUEEZE HAND GRIP UNLESS TANK IS AT *STOP*





speed drops below 1700 RPM downshift into low, but before doing so be sure you're traveling less than 12 MPH. And above all never operate when a warning light is on.

STOPPING AND IDLING

Idle engine at 1000 RPM for about five minutes to assure uniform cooling. To stop engine, while at 1000 RPM push in the fuel cut-off-switch, close throttle, hold in degasser until engine stops, then turn magneto switch to "OFF" position. Turn off master relay-switch if tank is to be stopped for any length of time. And above all, **set your parking brake.**

When you must stay in one spot with the engine running, set throttle at 800-1000 RPM. This'll keep the engine in good shape.

Note: The fuel cut-off switch will not stop a run-away engine. The switch works only when the engine is idling. To stop a run-away engine, turn off the magnetos; if that doesn't work, turn off the fuel-shut-off valve. It'll stop when it's out of gas.

M47 STALL SPEEDS AND CHECKS

WHEN your tank seems sluggish, and doesn't move out as it should, your engine is probably not up to par. To find out what is wrong with it, it is advisable to have company maintenance pull a stall speed check. Here is a run down on how it is done.

First check transmission and engine oil levels, then bring your engine and transmission up to normal operating temperature, then lock your brakes and place the shift lever in high range. Now open the throttle all the way. While the engine's running, glance at the tachometer; the pointer should level off between 2450 and 2650 RPM. **Caution:** Do not keep the throttle open longer than 30 seconds as you may overheat the transmission.

If the stall speed is below 2450 RPM the engine is not operating properly. Check for restricted air flow through air cleaners, ignition trouble, carburetors not balanced or throttles not opening fully.

If the stall speed goes up to 2800 RPM or against the governor, the transmission is slipping. Check to see that point of shift indicator or valve body is centered on "Hi" dot. If it is, transmission is in need of repair. Incidentally, when in "Hi" Stall, the tank should not creep forward, if it does the brakes need working on.

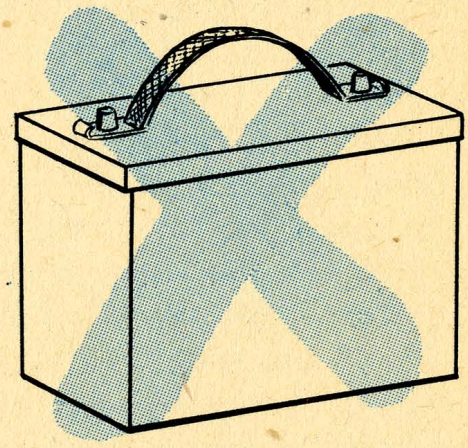
Stall speed checks in "Lo" or "Rev" can be used to tell if bands are slipping. If the tachometer reads 2800 RPM in "Lo" Stall and the shift indicator on the valve body is pointing to "Lo" dot, the "Lo" band needs to be replaced. Do not try to adjust it; it will not hold. The same check is good for Reverse.

6TN BATTERY LIFTER

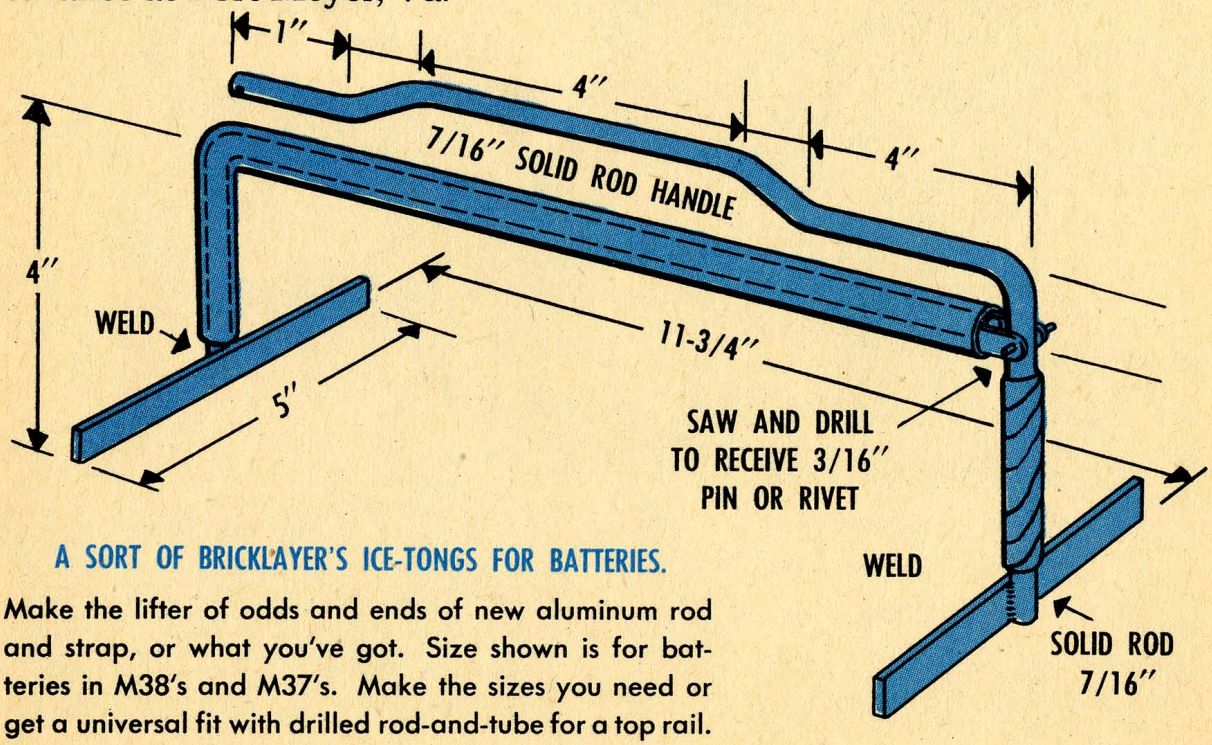
There's more juice in a lemon than you'll get out of a battery whose posts have become separated from their plates because it was lifted out of its M37 or M38 cradle with the old-type two-holed strap X'd out at your right.

Lifting the new 6TN's by their terminal posts cants the battery to one side and throws a sudden impact leverage on the plate-bridge joint, down under the pitch where you can't see it. Snap, crackle, and no pop next time you hit the starter.

The lifter offered here, with a full double-your-money-back guarantee by PS, was the best of many sent in by readers in response to hollers for help from all over the place. Thank Mr. James C. English of Post Maintenance at Fort Meyer, Va.



This item
cost you (gulp)
and the American People (sob)
$33.45 (groan)



A SORT OF BRICKLAYER'S ICE-TONGS FOR BATTERIES.

Make the lifter of odds and ends of new aluminum rod and strap, or what you've got. Size shown is for batteries in M38's and M37's. Make the sizes you need or get a universal fit with drilled rod-and-tube for a top rail.

STARTER CONTROL-LINKAGE FIX

Dear Editor,

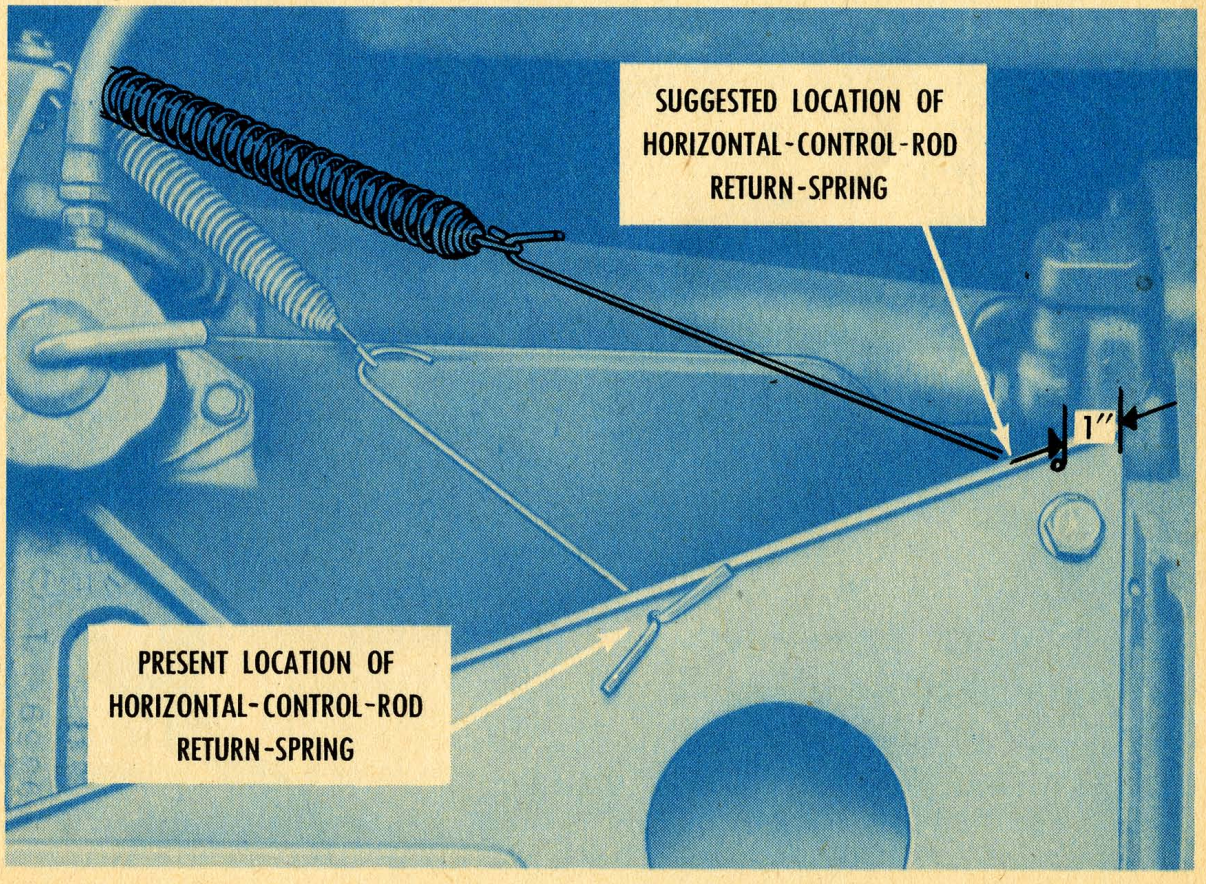
A number of starter-drive clutches have burned up on our M135's because the horizontal-control-rod return-spring failed to disengage the starter pinion.

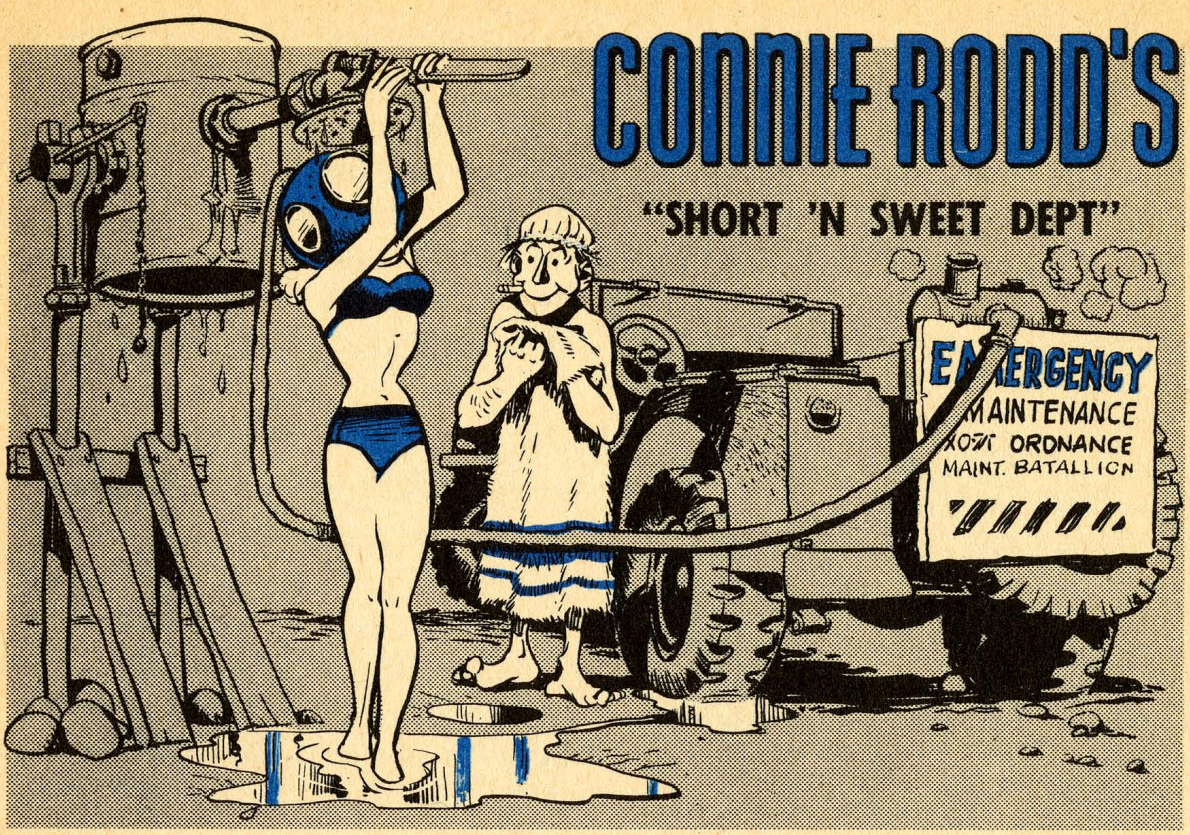
Our quick fix was to move the spring 1″ from the end of the right rear corner (see figure) of the control-tower mounting plate. We shaped a hook at each end of a 1/8″ x 8″ rod and hooked one end of the rod into the new hole, and the other end into the rear end of the return-spring. The reduced angle of pull disengaged the starter pinion pronto, but still allowed enough side stress to dampen vibration.

Then the important thing is to keep the linkage lubed; those tight connections add up plenty friction drag.

Patrick R. Porter
Camp Polk, Louisiana

(Ed Note—Mr. Porter's fix was blessed officially by letter DD #451.2/2427, 16 Apr 52 to all army headquarters, and picked up for production at approximate vehicle serial #17567.)





Transfer-case shifting

If I hadn't seen reports with my own eyes, I'd never believe it. Seems the 3/4-ton 4x4 Dodge M37's are getting their transfer-cases shattered because some guys driving them are driving like tsk, tsk, tsk . . .

One big fault is doing the damage—shifting from high-range to low-range while the vehicle's speed is nowhere close to slow enough for the shift. Which means no synchronization. Even if someone didn't know better, how could they stand the groans of pain coming from the transfer case when the gears started clashing?

It hasn't happened just a couple times, either. It's been a few here, and a few there—which added up to a lot. As a result, the shift-diagram plate for the transmission and transfer case was changed in production. These words have been added: VEHICLE MUST BE STOPPED BEFORE MAKING TRANSFER-CASE HIGH OR LOW SHIFT.

So do me a favor, will you? The next time you hear someone clashing transfer-case gears on the 3/4-ton (or any other ton) invite them for a walk behind the shop—and give them the you-know-what about shifting.

Insulating battery terminals

Here's a little notion to help keep your 12-volt batteries putting out 12 volts. Some Dodge trucks have a Neoprene insulator on their battery terminals, and I don't see why you can't make similar ones for Reos out of scrap inner tube.

Take a 2-1/2" square, and cut a 3/4" hole 7/8" from one corner. Put this rubber over the battery terminal before clamping on the cable, so it covers the two nearest corners of the hold-down frame.

Cap-screws on the loose

Here's a tip for you M38 Jeep-jockeys: The cap-screws that hold the front brake-assembly and spindle to the steering knuckle, can work loose when you're not looking. These cap-screws need you—to keep 'em tight. And you need them—since they hold the front wheels to the axle—and unless they're tight you can lose steering control and damage your reputation.

Pioneer bracket fix

On all M37 3/4-tons born before June, 1951, you'll probably find interference between the pintle hook and the lower rail of the pioneer-tool bracket when the body tailgate is lowered. Since then, they've been putting a cutout in the lower rail of the bracket so's the gate will hang down instead of out.

Using a cutting torch or a hacksaw, the same cutout could be made on the early production M37's by following the diagram below (Fig 1). Finish it off with a file and some paint and you're all set.

"Vehicle of the week" awards

Just got a personal note from OCT M. E. Lenning about the "Vehicle of the Week" award now under way in the motor pool at his station, Fort Eustis, Virginia.

He points out that in spite of the fast turn-over of personnel in these times, Fort Eustis now has smoother operating vehicles, higher supply economy and happier drivers and maintenance men. And it didn't take long for the contest to kick-up keen competition for the weekly pay-off—a colorful shield

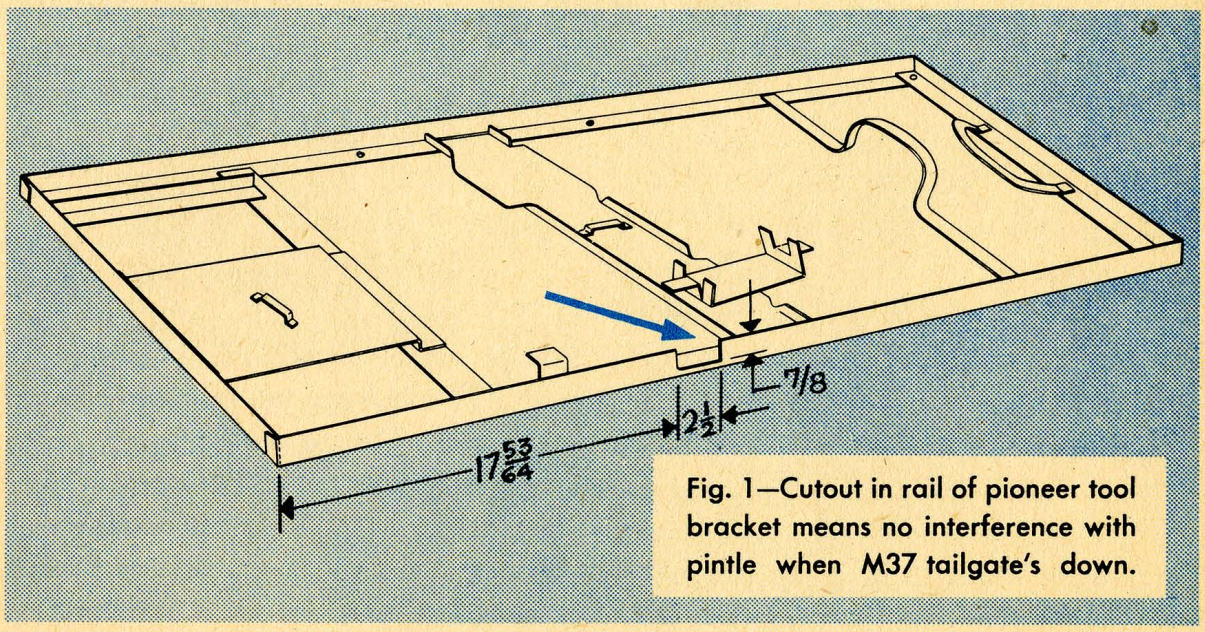


Fig. 1—Cutout in rail of pioneer tool bracket means no interference with pintle when M37 tailgate's down.

for the winning vehicle and a three-day pass for its conscientious driver.

Sounds real good—recognition for a job well done is something we all go for. I'm for more of the same—at more and more motor pools.

Flipping his lid

Now, I've seen the ultimate in something or other: Saw a driver walk over to his truck smoking a cigarette, and (wishing to get rid of it without messing up the pretty post) flip the butt **up on the top of his canvas tarp,** and drive off merrily—trailing smoke. It doesn't matter that he burned me, what does matter is that he burned the tarp.

Polarizing bracket

If you try hooking up the electrical connections between a trailer and truck without a polarizing key in the receptacle, it can spell trouble. If the key is worn or broken off, a polarizing bracket (SN G747-7355938) will take care of the situation.

Remove the receptacle's bolts and fit the bracket under the receptacle. Position the bracket so the longest prong is opposite the receptacle-cover's hinge (Fig. 2). With the polarizing bracket, there's only one way the harness plug can plug in—the right way. The long prong on the bracket slides thru the plug-cover-hinge bracket (Fig. 3).

Check the receptacle to make sure the polarizing key, or where a key should be, is directly opposite the long prong of the bracket. If the key's out of position it won't take the cable-plug, or if the key's out of position and broken off as well, it's possible to force the plug into the receptacle, and whang . . . reverse polarity.

The fix is: remove the trailer-connector housing and turn the connector 'til the key is at the top (Fig. 2).

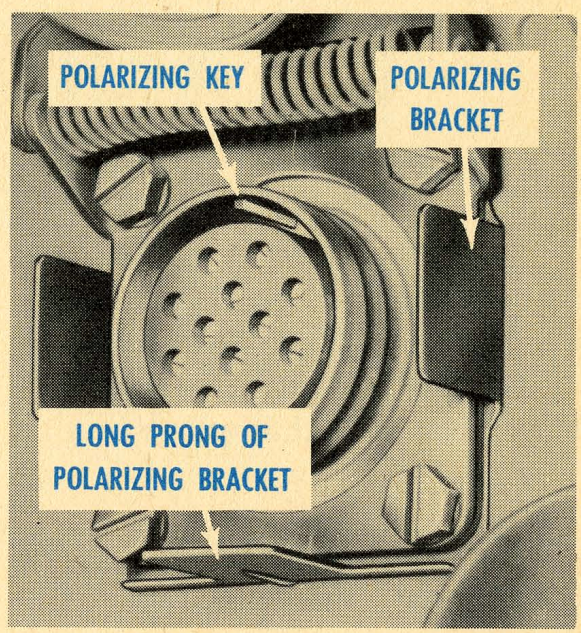


Fig. 2—Correct position of polarizing key in relation to long prong of polarizing bracket.

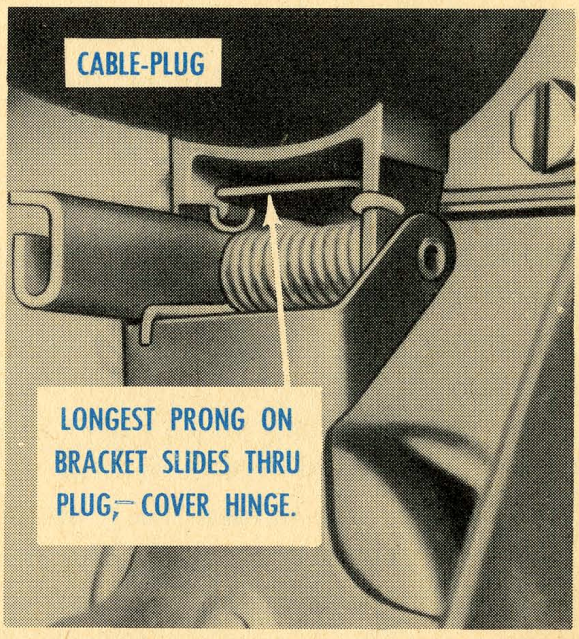


Fig. 3—Worm's eye view showing installation of polarizing bracket and cable plug.

Keeping the M46, M46A1, and M47 Tanks Filter-Happy

OIL FILTER CLEANING TIME

Air-maze filters in engine and transmission on the M46, M46A1, and M47 tanks, should be removed and cleaned **twenty five miles after** oil has been changed or new oil (½ of capacity or more) has been added.

The old practice has been to clean filters at the same time oil is changed, which is at 100 hour intervals. But it has been found that when high-temperature-warning-light would flash on shortly after a complete oil change, 9 times out of 10 the cause would be a clogged filter. The reason for this is that the highly detergent **new** oil goes to work as soon as the vehicle is put back into operation, and does a thorough cleaning job of picking up engine residue.

So the 25-mile wait will give the new oil time to circulate and do its cleaning job before the filter is scoured. Without cleaning the filters after 25-miles, an overload of waste may clog the clean filter and cause your engine or transmission temperature to go sky-high.

WATCH THAT HEAT!

Overheating is death to the CD 850 transmission. Its grave is started whenever you operate it with the transmission-high-temp-warning-light burning (280° F-290° F). The lead base of the babbitt bearing in the transmission's reaction-plate hub weakens and melts when the temperature gets above 300° F for an extended period—**2 minutes or more.** Keep your good eye on that HI-TEMP warning light; when it comes on stop immediately.

If your transmission has been run with the HI-TEMP warning light on (you can tell because the oil is sludgy and smells burnt) remove and clean the air-maze filter and change the transmission oil before your tank goes back into operation. Over heating causes the filter discs to become coated with gum and varnish and sometimes tiny bits of metal.

This is a wrench that really works, which means you needn't bruise yourself, removing plugs from M46, M46A1, or M47 tanks

SPARK-PLUG WRENCH

Removing the embedded spark-plugs from M46, M46A1, or M47 tank engines is usually a knuckle-busting job. But it need not be.

The gimmick is a long hollow-tubular-wrench, into which the harness end of a plug-cable is inserted and it then slips down over the cable and onto the submerged spark-plug.

When this wrench is deep in the engine and on the plug, the plug is easily broken loose by turning its hex-head that protrudes above the engine's surface. The plug and cable screw out as one unit—they're also screwed into the engine as a unit.

As yet, this wrench isn't a stock item—make it with the following:

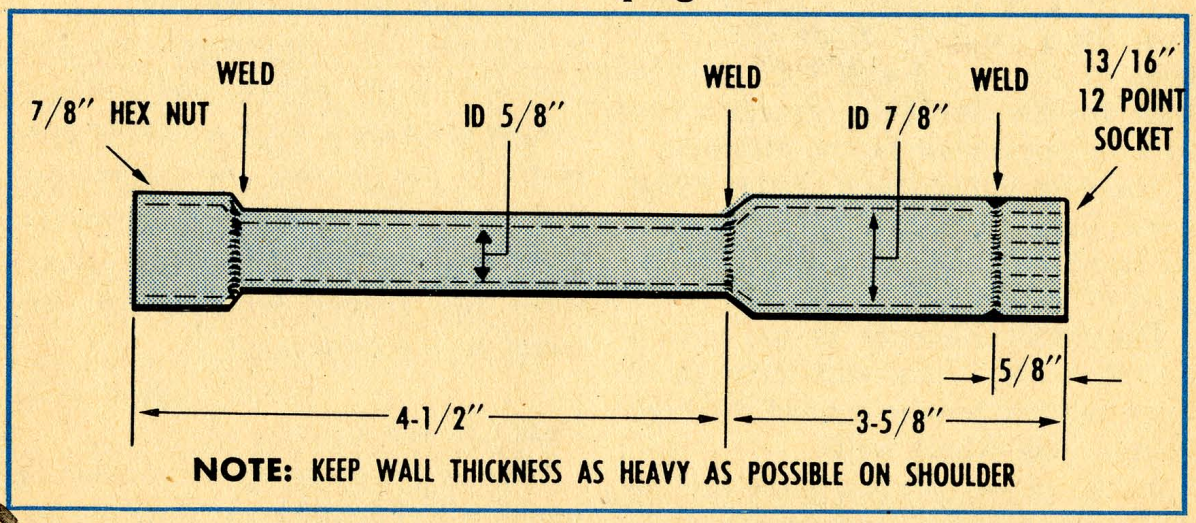
1. One 13/16″ deep socket.

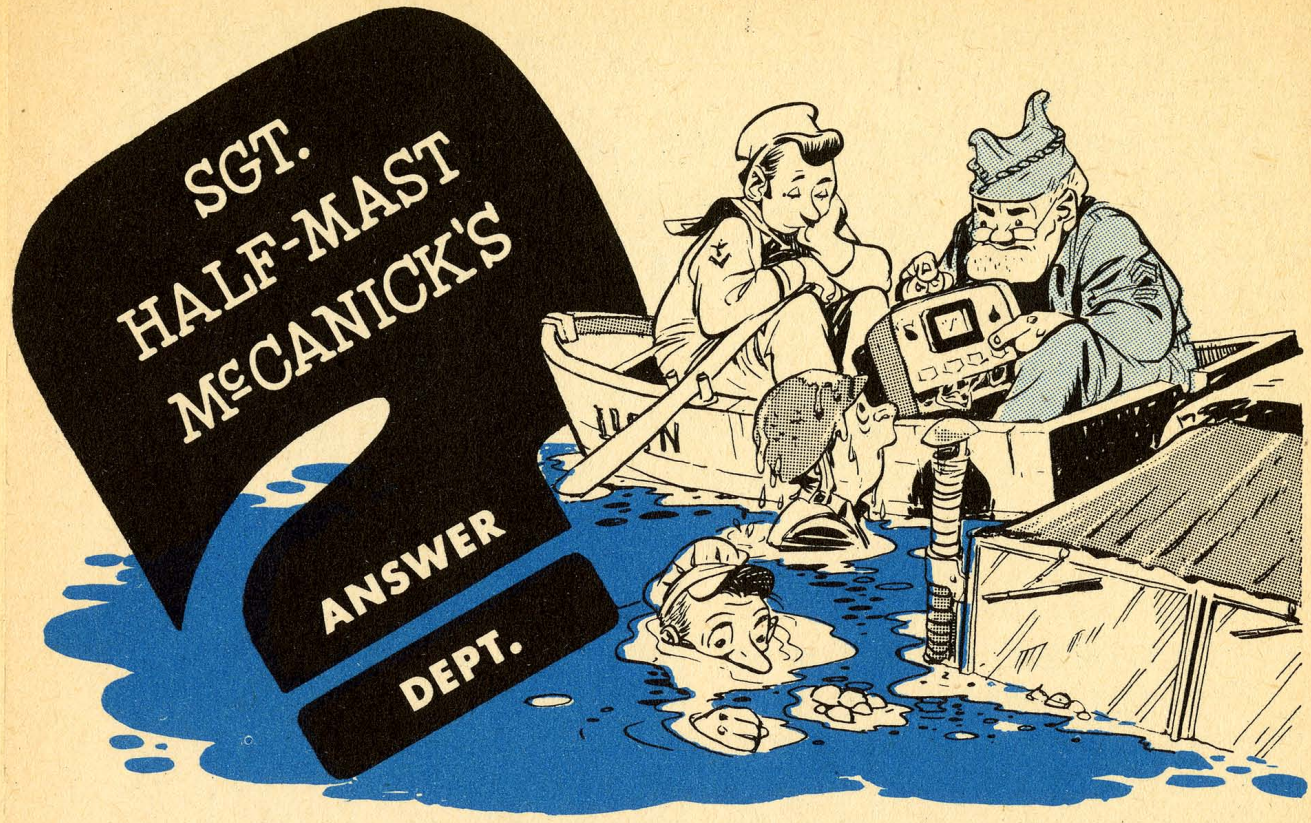
Note: Unfortunately, (sob) this article is not authority to draw a 3/16″ socket; **but**—neither can you draw Heli-Coils if you remove or wreck one.

2. One piece of 7/8″ ID thin-wall tubing 3″ long.
3. One piece of 5/8″ ID thin-wall tubing 4″ long.
4. One 7/8″ hex-nut.

And assemble it so: 1. Cut off the drive end from the 13/16″ ID socket. 2. Weld the socket to the piece of 7/8″ ID tubing. 3. Weld the other end of the 7/8″ tubing to the piece of 5/8″ ID tubing. Make this shoulder strong. If you don't, the wrench will twist in two at this point. 4. Weld the 7/8″ hex-nut onto the exposed end of the 5/8″ tubing.

Caution... on a AV-1790 engine, first break the plug loose with a wrench then remove the wrench and screw out the plug by its cable. This method'll prevent screwing out the Heli-Coil inserts from the plug hole.





FLAT BED SHOPTRUCKS

Dear Half-Mast,

Are any plans available that show how to install tool sets in the new trucks that have the big tires and wheel wells?

Sgt L. J. W.

Dear Sgt L. J. W.,

T'won't be necessary. Latest word from the production front is that no more of the wheel-well jobs will be made for the time being except a few for sandy-beach use by the Marines.

The new flat-bed by GMC is designated XM 211 instead of M135, and the Reo-Studebaker version is M35 instead of M34.

The only difference in the two is that the new issues will have small duals and flat beds instead of the high floaters with wheel wells.

As to tool-set layout, there are no fixed arrangements, and no directives to require that you put certain things any certain places. It may help you make an effective arrangement to look at sample tool-set layouts like the ones in TB 9-819-2, and the TB ORD 444 series.

Half-Mast

VOLTAGE AND AMPERAGE

Dear Half Mast,

I have an electrical problem:
1—Can you have amperage while the generator is not putting out voltage?
2—Can you have voltage while the generator is not putting out amperage?
3—If you have a defective generator regulator, can you still have a spark when you ground the armature terminal on the generator?

Cpl R. S. T.

Dear Cpl R.S.T.,

Voltage and amperage are measuring units used to describe any flow of electricity. They always go hand in hand.

One cannot exist without the other. One way of understanding this is to think of amperage as the **rate** of current flow, while voltage is the **pressure** under which it is flowing.

Now if you really want to become the Unit electrical genius, get hold of TM 11-490 "Electrical Fundamentals" and TM 9-2700 "Principles of Automotive Vehicles" especially Part III, pages 170 to 245, and bone it up. This is interesting stuff, and most useful.

As to getting a spark from the generator armature terminal to a ground when you may have a defective generator-regulator—you sure can. The function of this regulator is only to measure and control the generator output. It can be a total wreck while your generator may be 100% OK. Failure in the regulator can result in no output, or what is worse, uncontrolled output—in which case the voltage can climb sky high, and result in burned out headlights, ignition coil, and so on.

I would suggest that you have your generator and regulator tested as a team, either on the shop test-bench or on a vehicle. Your Organizational Maintenance Equipment is authorized to include a "Tester Low Voltage Circuit" (ORD 1-41, Stock No. 17-T-5575-50) which is just the thing for the test.

And while we're talking—if you are not too well acquainted with generators, regulators and so on, try and shove this job off on somebody who is. If you must do it yourself, bone up on the above mentioned TM's before starting.

Half-Mast

SPARK–PLUG RESISTORS

Dear Half-Mast,

I got to wondering about the bad spark plugs on my M38's, and took one apart to see if I could find out what made 'em miss. I found the little carbon resistor all burned up. When I replaced this resistor with a short length of brass welding rod the plug worked fine.

Sgt R. L. L.

Dear Sgt R.L.L.,

I'll buy that idea about putting a brass rod in your spark plug to replace the carbon resistor, but only when you cannot get a replacement spark plug. Sure it works, but it knocks the radio suppression out of kilter. Even if you haven't a radio in **your** buggy, you can louse up the reception all around you when you drive without the resistors. The spark plug electrodes burn up faster too. So if you gotta get along on a jimmed up plug, OK, but get a new one as soon as you can. And if you are careful to torque the new plug to 28-30 foot pounds when you put it in, the copper gasket has a better chance to carry off the heat, and the plug will last longer.

Half-Mast

QUICK CARBURETOR-CLEANING

Dear Half-Mast,

Does it hurt a motor or carburetor to clean out the carburetor by crossing two of the plug wires to make the motor backfire through the carburetor? We use this method in the field every once in a while when we are hard up for time.

Sgt G. R. N.

Dear Sgt G. R. N.,

I am sorry to say it does hurt a carburetor to cause deliberate backfiring. It may do any of these unpleasant things:

Sear the carburetor venturi (carefully shaped white metal).

Damage the intake-manifold gasket.

Blow off or loosen throttle valve and/or choke valve.

Blow oil out of the air cleaner.

Start a fire.

On top of the damage you can cause, it seems to me to be a very temporary fix in any case. You will not get much of the force of the backfire back through the jets and into the float bowl anyway, and what dirt might be dislodged will remain in the float bowl ready to go right back into the jets again.

It is possible on many of the carburetors to get the plugs out of the bottom of the float bowl without removing the carburetor from the vehicle. Doing this lets the gas in the bowl drain out, and with it any sediment and water that may have collected. Tickling the priming lever under the fuel pump will further wash out this bowl. This procedure will not take much longer than crossing the wires and running the engine. However, since in most cases the gasoline drained will run over the engine block or the manifolds, I suggest that you pick a time to do this when the engine is cool and won't be needed for some time afterwards. (A burned-up vehicle will undoubtedly burn up your CO.)

Half-Mast

SEAT SETTIN'

Dear Half-Mast,

In the '49 and '50 Chevrolet Carry-All we've found that both the assistant driver's seat and the dash-board are taking pretty much of a beating when the seat hits against the dash.

We played around with it, and came up with this idea: Weld a piece of steel stock across the rear support-frame of the assistant driver's seat about 4 inches from the bottom of the support frame. This way the seat is stopped some inches away from the dash-board. What do you think of this idea?

WOJG R. G. M.

Dear WOJG R.G.M.,

Well, Sir—if them's your troubles, that's your fix.

Half-Mast

YOUR ARMY NEEDS YOU

For another thing besides what you're doin' now.
You got a question? What's bothering you is bothering someone else, too. Let's get it out in the open.
Write to Half-Mast, he'll answer anything. Address:
PS MAGAZINE, ABERDEEN PROVING GROUND, MARYLAND

SLICK TIRES AND A FLAT WALLET

A unique technique from a reader that will drive home the point—and the tires—in plenty of time for recap.

Dear Editor,

We've found that it's not always enough to <u>just tell</u> drivers that to save a tire it must be turned-in for recap when it's worn down just so-o-o far, and not one turn more. In our shop we get good tire-turn-in results with a simple tire display.

We use two metal racks (made of scrap metal and painted red) in plain view of all motor pool personnel. One rack supports a tire showing maximum allowable wear, and the other rack holds a tire that was rolled past its salvage point.

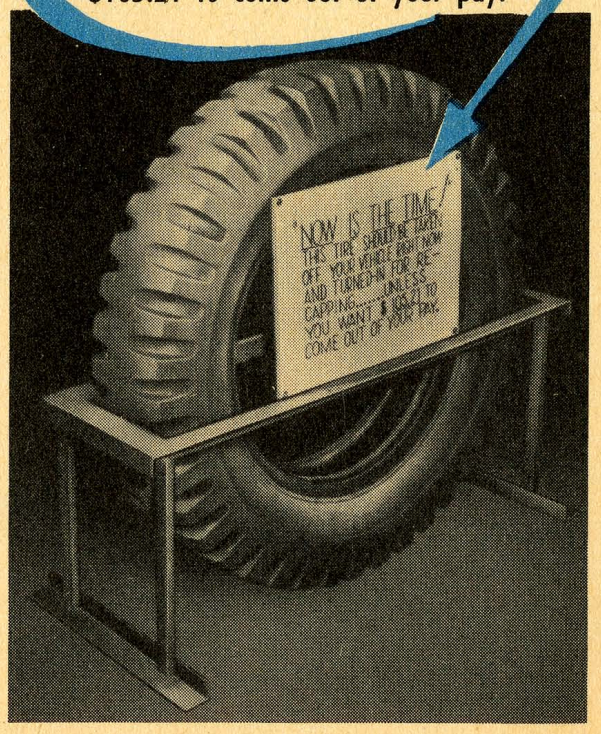
MSgt E. W. Bussell
Fort Benning, Georgia

"I WANT $105.21"

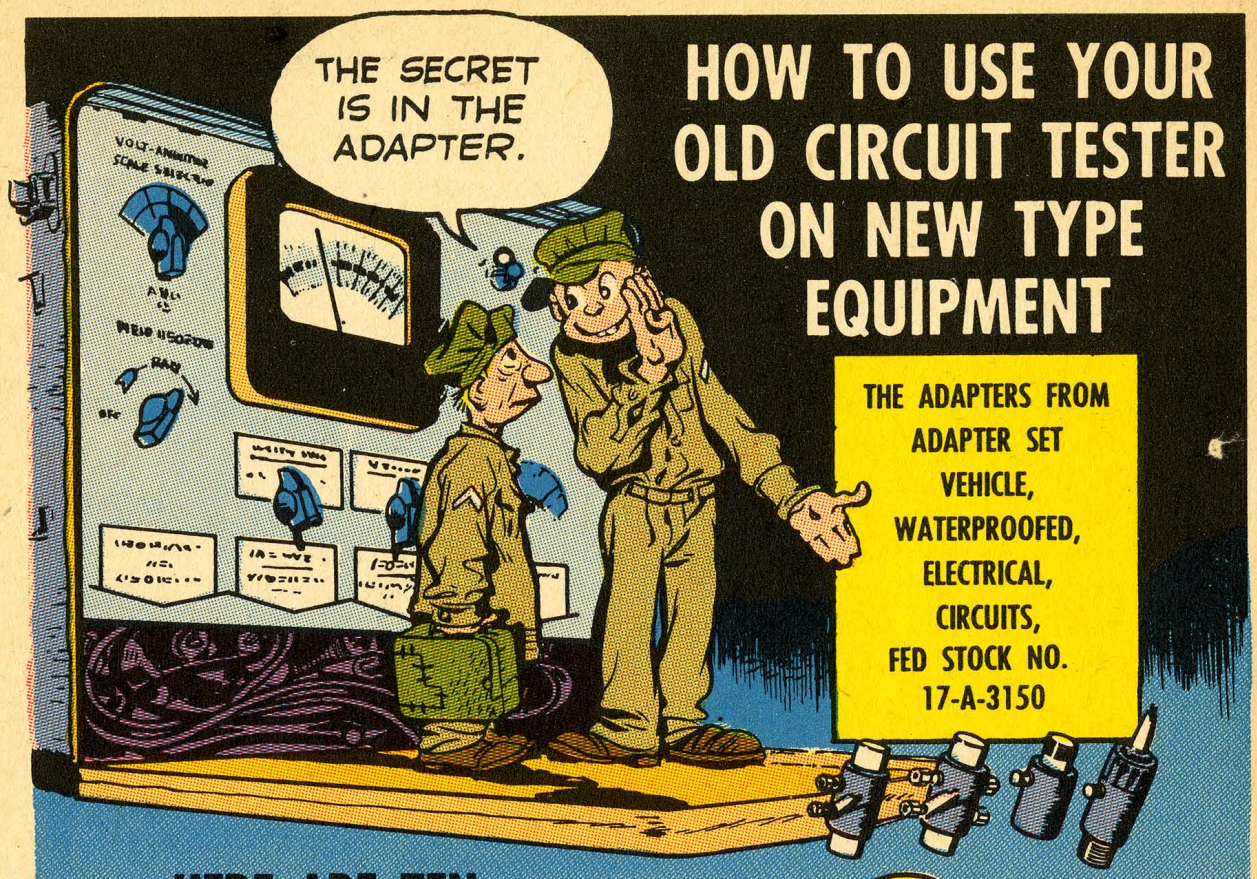
I have been worn down too low for re-capping purposes. My threads are showing. Driver reach for your wallet.

"NOW IS THE TIME!"

This tire should be taken off your vehicle right now and turned in for re-capping . . . unless you want $105.21 to come out of your pay.



HOW TO USE YOUR OLD CIRCUIT TESTER ON NEW TYPE EQUIPMENT

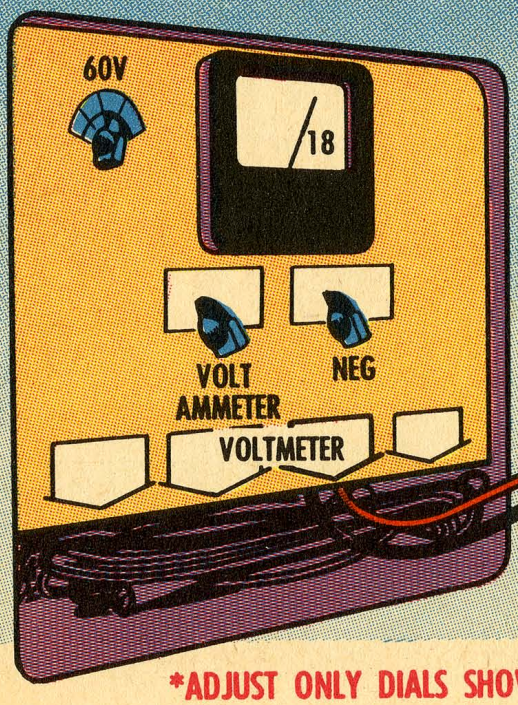


THE ADAPTERS FROM ADAPTER SET VEHICLE, WATERPROOFED, ELECTRICAL, CIRCUITS, FED STOCK NO. 17-A-3150

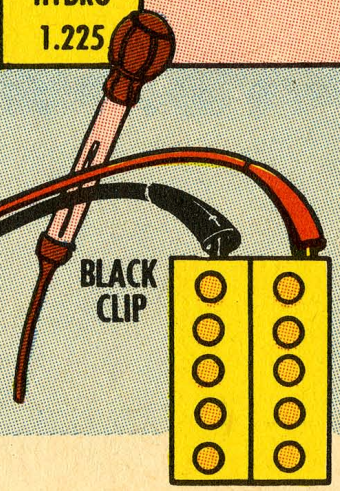
THESE PLUS YOUR OLD TESTER DOES IT.

HERE ARE TEN FUNDAMENTAL TESTS *

1 BATTERY VOLTAGE AND GRAVITY



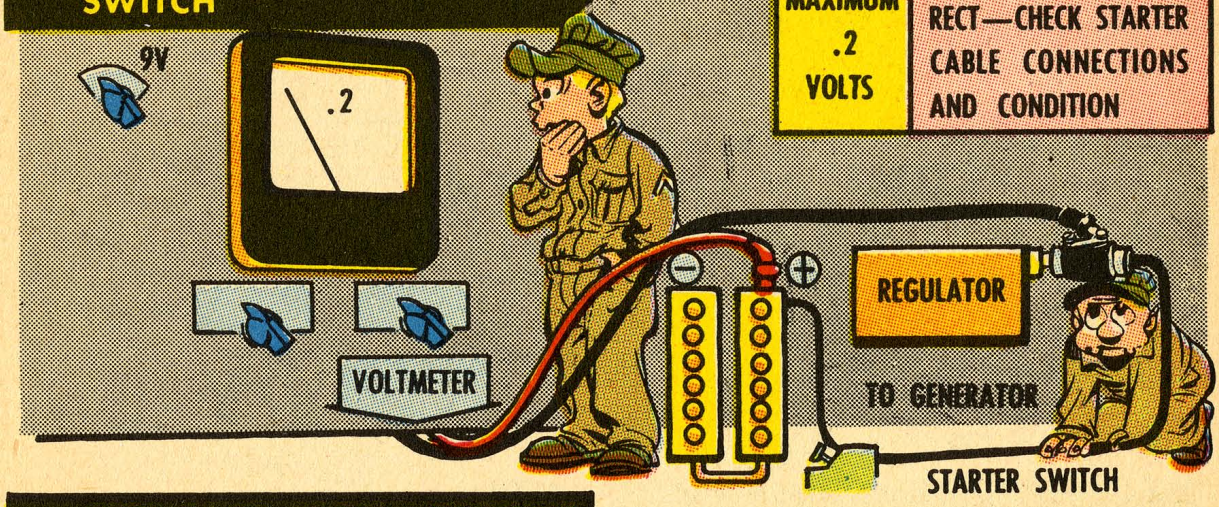
READING	WHAT TO DO . . .
VOLTAGE 18.0 MINIMUM HYDRO 1.225	IF INCORRECT CHECK BATTERIES' JUMPER CONNECTIONS



*ADJUST ONLY DIALS SHOWN

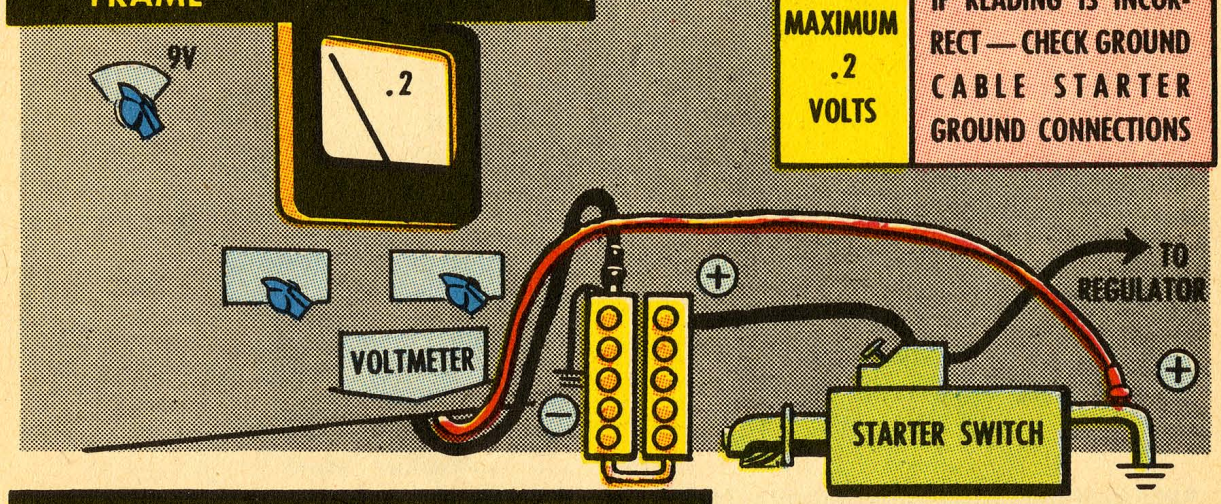
2 TEST DROP FORM POSITIVE BATTERY POST TO STARTER SWITCH

READING	WHAT TO DO . . .
MAXIMUM .2 VOLTS	IF READING IS INCORRECT—CHECK STARTER CABLE CONNECTIONS AND CONDITION



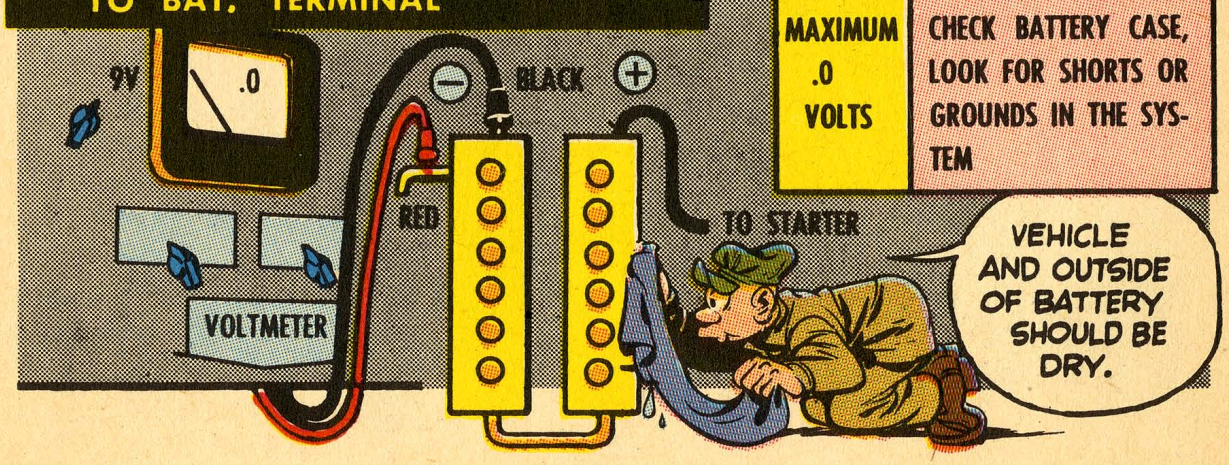
3 TEST DROP FROM NEGATIVE BATTERY POST TO STARTER FRAME

READING	WHAT TO DO . . .
MAXIMUM .2 VOLTS	IF READING IS INCORRECT—CHECK GROUND CABLE STARTER GROUND CONNECTIONS

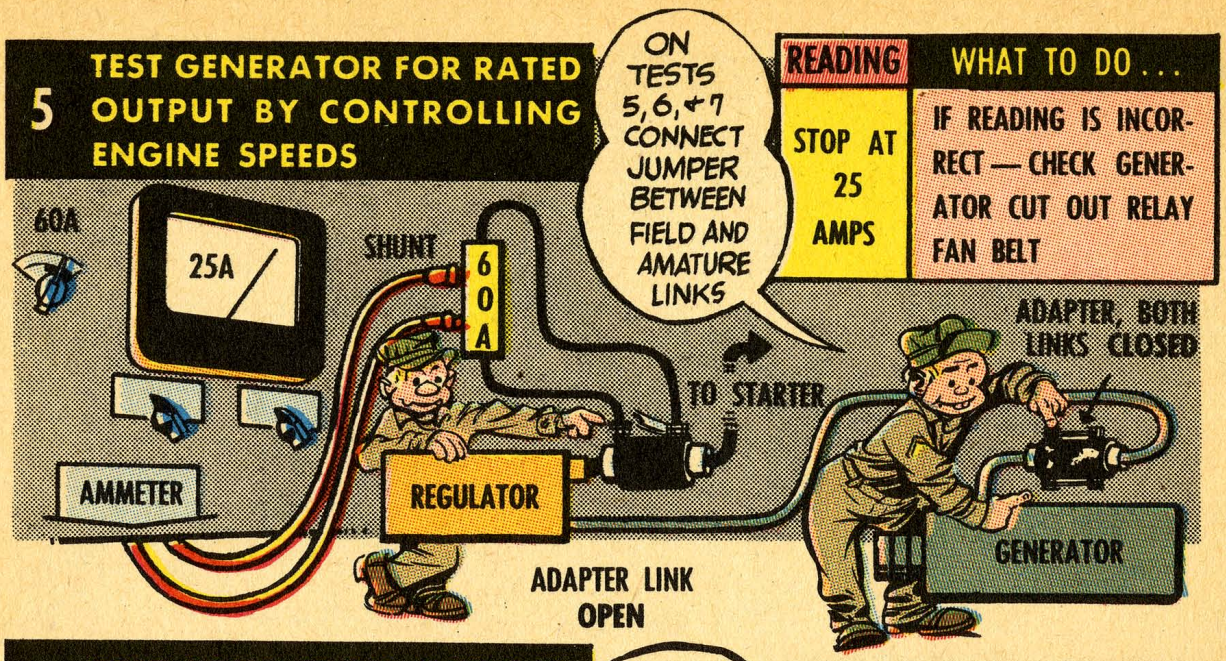


4 REMOVE GD. CABLE FROM BAT. AND CONNECT VM FROM CABLE TO BAT. TERMINAL

READING	WHAT TO DO . . .
MAXIMUM .0 VOLTS	IF READING IS OFF CHECK BATTERY CASE, LOOK FOR SHORTS OR GROUNDS IN THE SYSTEM

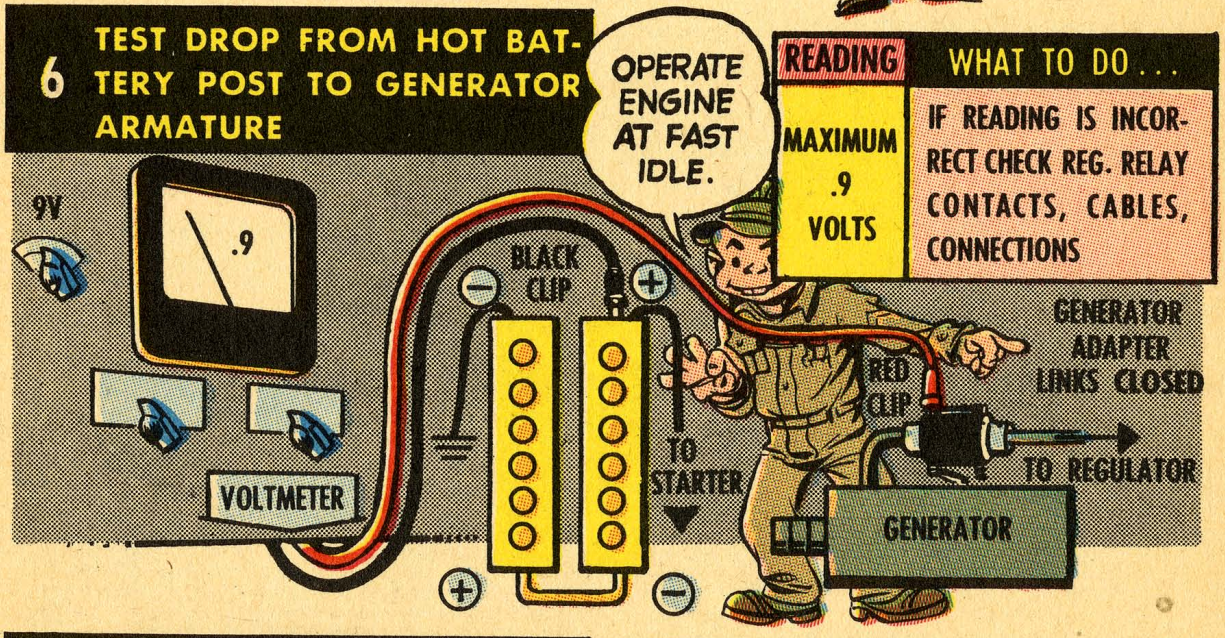


5 TEST GENERATOR FOR RATED OUTPUT BY CONTROLLING ENGINE SPEEDS



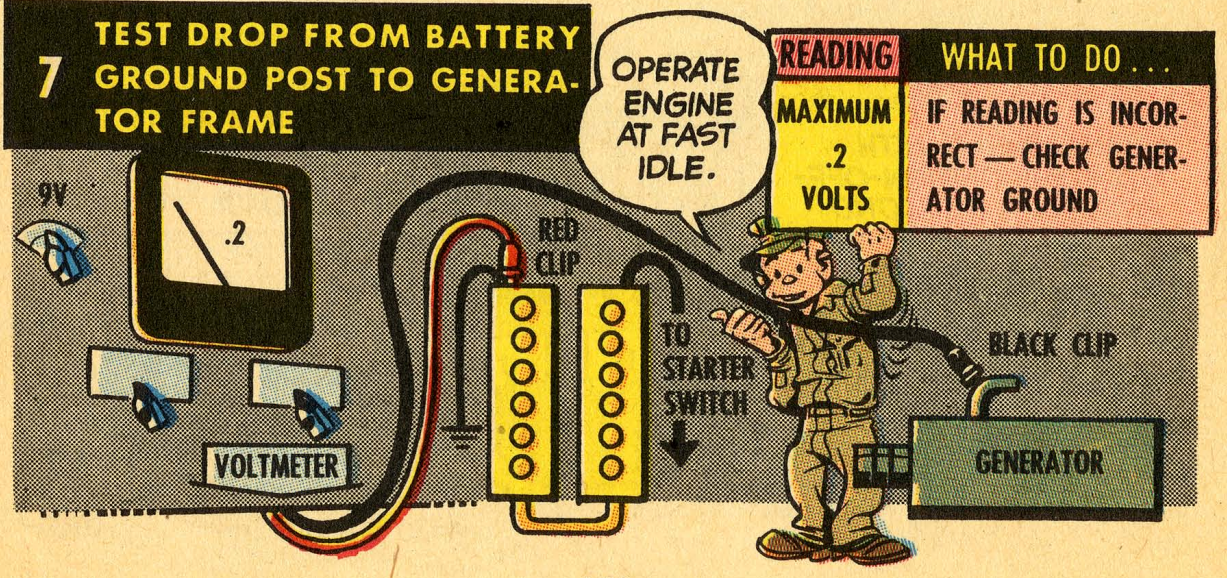
READING	WHAT TO DO . . .
STOP AT 25 AMPS	IF READING IS INCORRECT — CHECK GENERATOR CUT OUT RELAY FAN BELT

6 TEST DROP FROM HOT BATTERY POST TO GENERATOR ARMATURE



READING	WHAT TO DO . . .
MAXIMUM .9 VOLTS	IF READING IS INCORRECT CHECK REG. RELAY CONTACTS, CABLES, CONNECTIONS

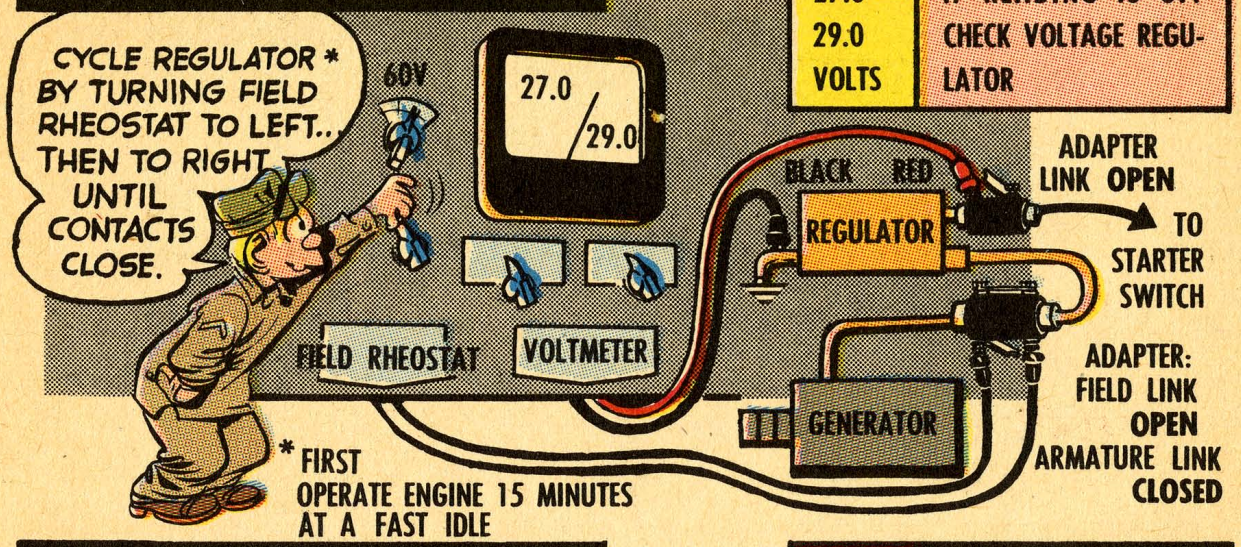
7 TEST DROP FROM BATTERY GROUND POST TO GENERATOR FRAME



READING	WHAT TO DO . . .
MAXIMUM .2 VOLTS	IF READING IS INCORRECT — CHECK GENERATOR GROUND

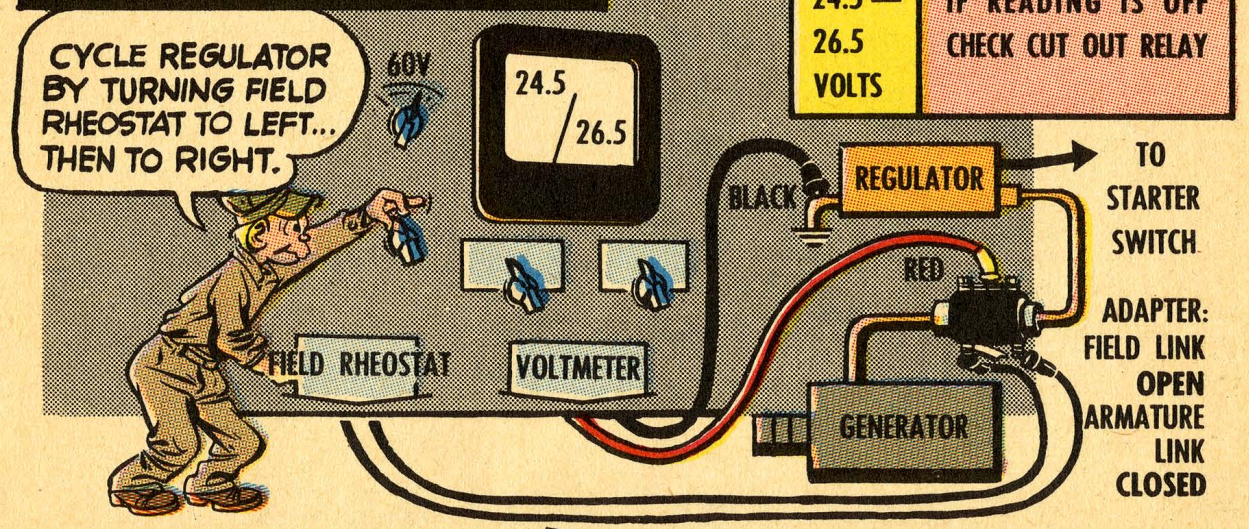
8 VOLTAGE REGULATOR

READING	WHAT TO DO . . .
27.0 — 29.0 VOLTS	IF READING IS OFF CHECK VOLTAGE REGULATOR



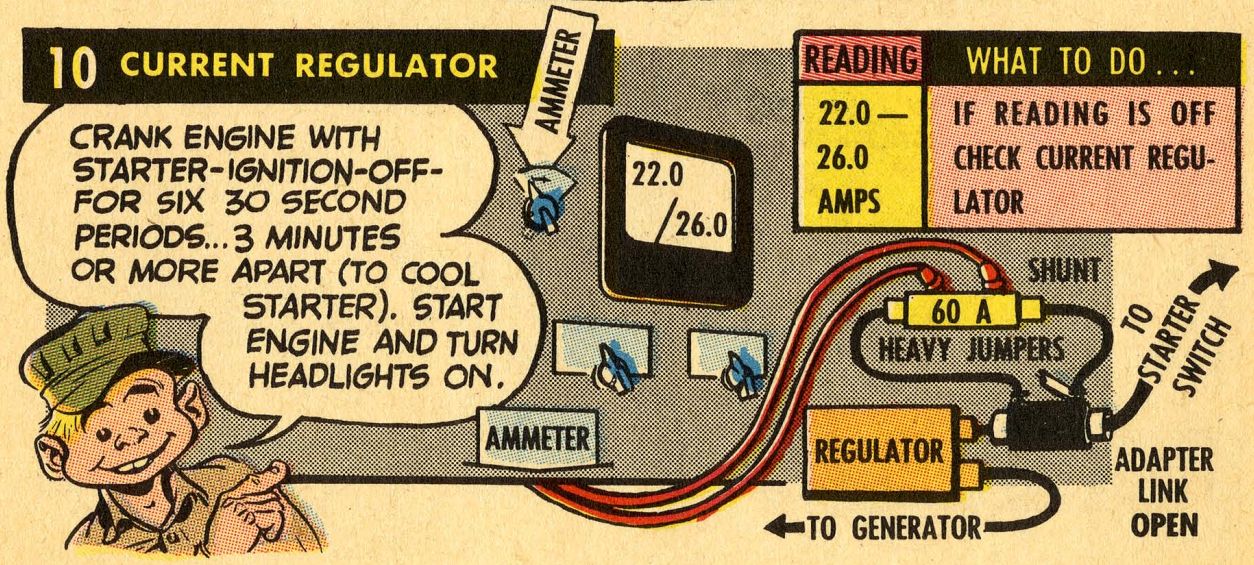
9 CUT OUT RELAY CLOSING VOLTAGE

READING	WHAT TO DO . . .
24.5 — 26.5 VOLTS	IF READING IS OFF CHECK CUT OUT RELAY

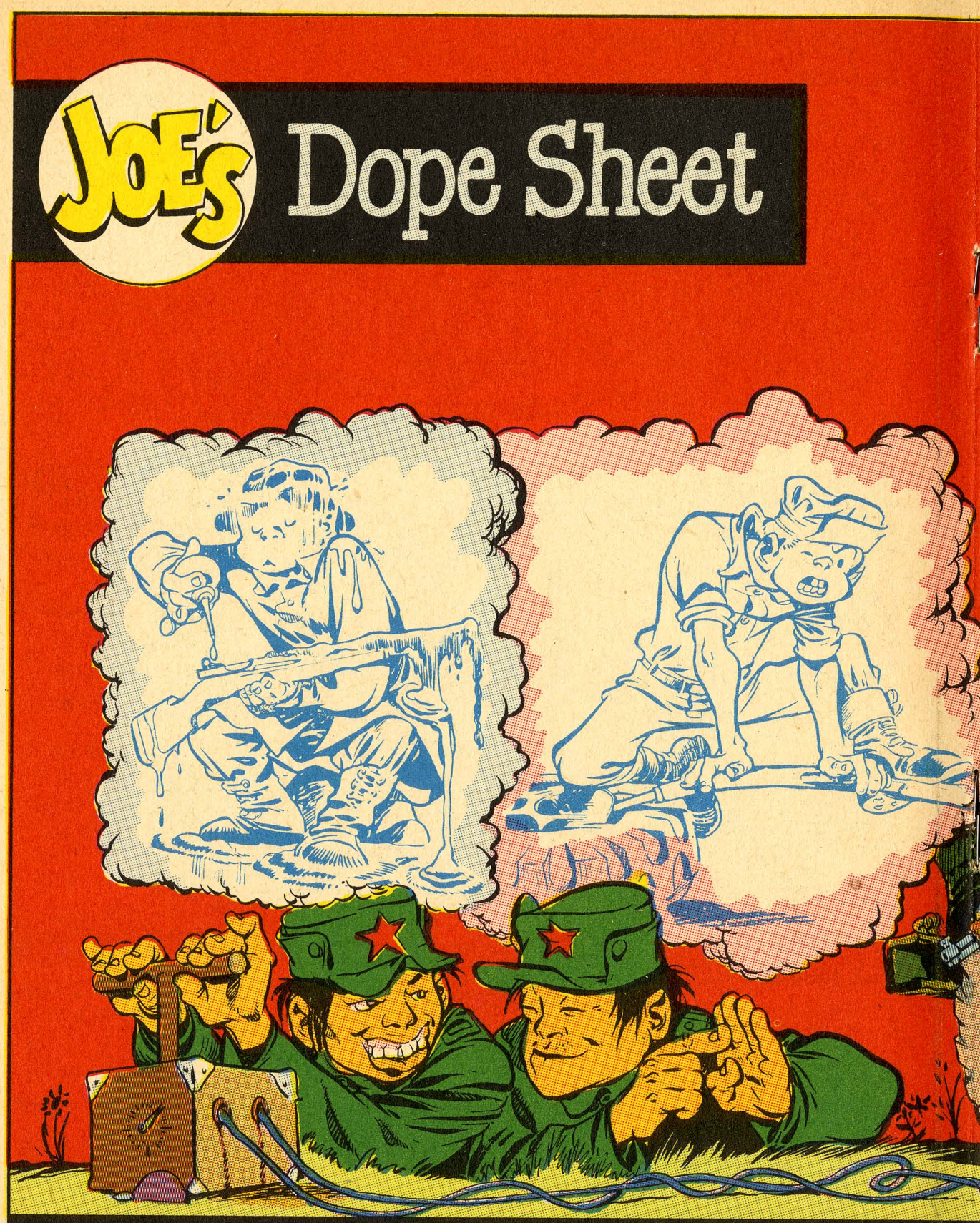


10 CURRENT REGULATOR

READING	WHAT TO DO . . .
22.0 — 26.0 AMPS	IF READING IS OFF CHECK CURRENT REGULATOR



JOE'S Dope Sheet

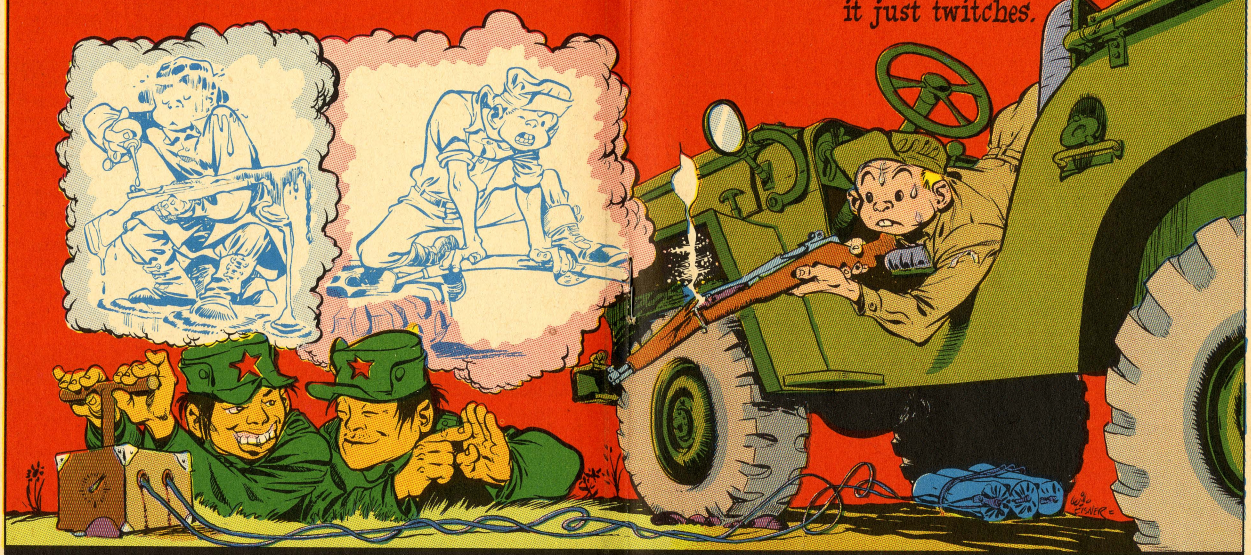


WE HAVE THE WORLD'S BEST EQU

PRODUCED UNDER SPECIAL LICENSE TO U.S. DEPT. DEFENSE COPR. 1952 WILL EISNER PRODUCTIONS

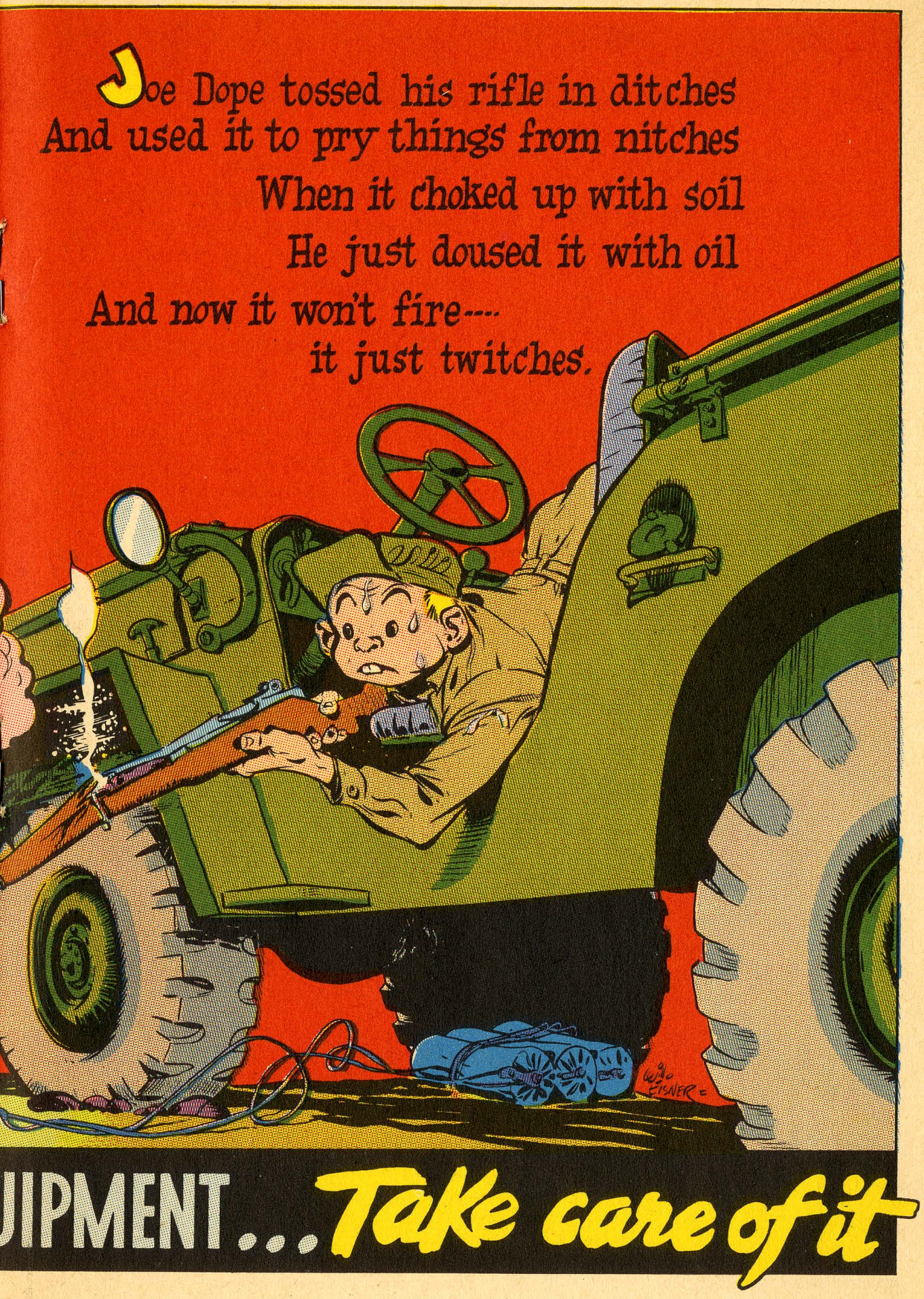
JOE'S Dope Sheet

Joe Dope tossed his rifle in ditches
And used it to pry things from nitches
When it choked up with soil
He just doused it with oil
And now it won't fire----
it just twitches.



WE HAVE THE WORLD'S BEST EQUIPMENT... Take care of it

PRODUCED UNDER SPECIAL LICENSE TO U.S. DEPT. DEFENSE COPR. 1952 WILL EISNER PRODUCTIONS


Joe Dope tossed his rifle in ditches
And used it to pry things from nitches
When it choked up with soil
He just doused it with oil
And now it won't fire----
it just twitches.

UIPMENT... Take care of it

SOME READER TIPS ON

OIL SEAL SEEP AND LEAK

Dear Editor,

After months of greasy black nightmares over GMC 2-1/2-ton oil-seals leaking, we finally learned the answers and thought we ought to pass them on to other reserve outfits that might be as green as we are.

We were using some kind of black stuff the consistency of chassis lube instead of the light-colored bearing lube that's made for the job.

We were filling gear cases up to level instead of an inch below like PS has been advising.

And by not watching tire diameters to get matched radii, our differentials were churning merrily and pressuring gear lube past the oil seals.

Finally, we found out by asking a few discreet questions of people who've been around these trucks a while longer than we have, that you just don't worry about a little seepage out of those rear banjos. It's been going on for years and never got any better or any worse no matter what anybody did about it.

PFC R. Wass
Camp Atterbury, Indiana

INSPECTION-HOLE COVERS

Dear Editor,

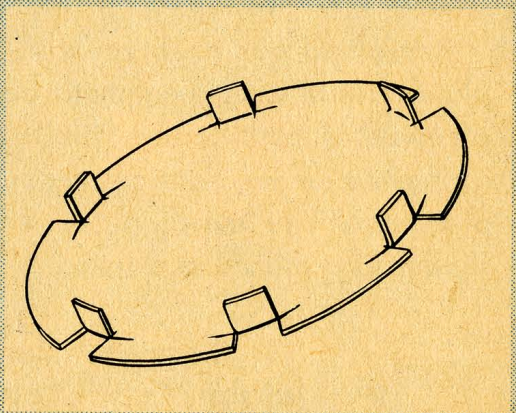
Lots of drivers lose the covers from the inspection holes in the floor of the old 2-1/2-ton trucks.

I have found that the metal plate from a discarded hotpatch is just right if you split the rim with a pair of dikes in eight places—leave a half-inch standing in about four places, and straighten out the rest.

It will fit the inspection hole for the master cylinder very nicely.

WO Paul M. Dent
APO 86, San Francisco

(Ed Note—Splitting the rim in twelve places, six standing, should work even better. Makes it easier to flatten the sides and gives you more prongs.)



SOME READER TIPS ON WORLD WAR II TRUCKS

OIL SEAL SEEP AND LEAK

Dear Editor,

After months of greasy black nightmares over GMC 2-1/2-ton oil-seals leaking, we finally learned the answers and thought we ought to pass them on to other reserve outfits that might be as green as we are.

We were using some kind of black stuff the consistency of chassis lube instead of the light-colored bearing lube that's made for the job.

We were filling gear cases up to level instead of an inch below like PS has been advising.

And by not watching tire diameters to get matched radii, our differentials were churning merrily and pressuring gear lube past the oil seals.

Finally, we found out by asking a few discreet questions of people who've been around these trucks a while longer than we have, that you just don't worry about a little seepage out of those rear banjos. It's been going on for years and never got any better or any worse no matter what anybody did about it.

PFC R. Wass
Camp Atterbury, Indiana

INSPECTION-HOLE COVERS

Dear Editor,

Lots of drivers lose the covers from the inspection holes in the floor of the old 2-1/2-ton trucks.

I have found that the metal plate from a discarded hotpatch is just right if you split the rim with a pair of dikes in eight places—leave a half-inch standing in about four places, and straighten out the rest.

It will fit the inspection hole for the master cylinder very nicely.

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APO 86, San Francisco

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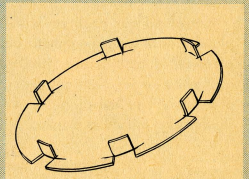


LEAKY HYDROVAC-TUBES

Dear Editor,

A few days ago, the brake system of our 2-1/2-ton, 6x6 (GMC) truck (CCKW-353) started acting up. The trouble was caused by a leaky connection where the inverted end of the hydrovac-cylinder tube joins the master cylinder. (This is the second vehicle that I know of to have this happen.)

Since I couldn't get another tube from the Ordnance Depot here, I repaired the one I had. First I applied a coat of Permatex to the tube, and wrapped a piece of cloth around it so that both ends would meet. Then I forced the opening of the inverted screw on the tubing and soldered it, using soldering flux and acid-core solder. After that I covered the soldered place with another coat of Permatex.

It worked perfectly—but this is only an emergency repair to keep the vehicle off the deadline until we get another tube.

Cpl Jules Jacobs
Fort Devens, Massachusetts

(Ed Note—But like you say, don't consider it a permanent fix.)

PROTECTOR for the PROTECTOR

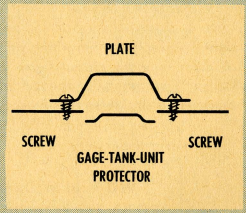
Dear Editor,

Our shop foreman, Sgt Clifford H. Sparks, has an answer to the problem of fuel-gage-tank-unit Protectors constantly wearing out on 1/4-ton 4x4's.

He solved our problem with a plate made of scrap sheet-metal and a couple of metal screws. The seat springs no longer wear out the unit protector. The metal plate was shaped and placed as shown.

Lt Charles F. Beal
Ft. Clayton, Canal Zone

(Ed Note—Good deal for the old Jeep. The seat on the M38 rests on a metal frame and doesn't worry the protector.)



WORLD WAR II TRUCKS

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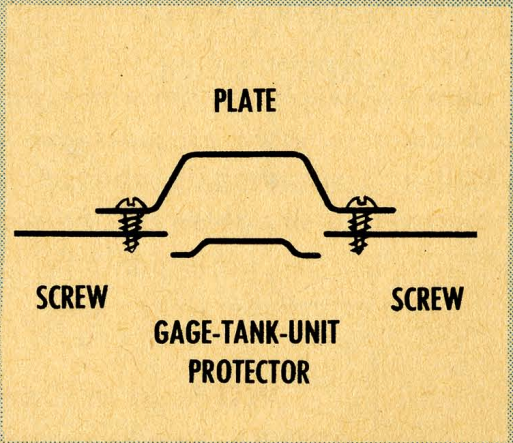
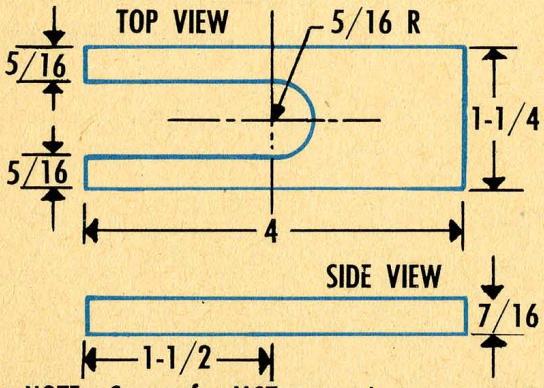


SPECIAL TOOL
FOR STARTER PINION TRAVEL ADJUSTMENT

To save your M38 1/4-ton from getting bunged gear-teeth or burned switch-contact-points, the Auto-lite starter - pinion - travel - adjustment has to be exact. For this, you need a special tool—like you see here.

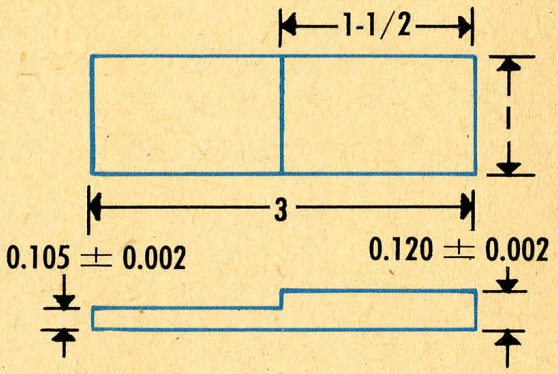
When making the adjustment per TB 9-1825B-1 (5 Dec 51), par. 32 c, (2), be sure to use the new figure 0.105 instead of 0.235 to fix the limit of pinion travel before electric contact is made. Also, get the set screw in the plunger barrel tight—so it **can't** vibrate loose in operation. It might be a good idea to replace it with an Allen-type screw, since you can apply more leverage with a wrench than with a screwdriver.

INTERFERENCE SPACER
AUTO-LITE STARTER MCS

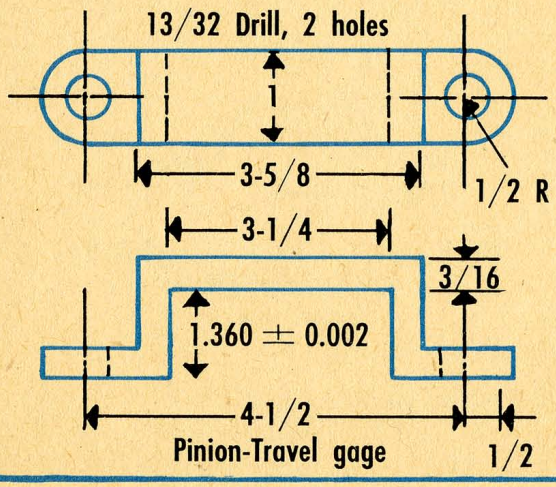


NOTE: Spacer for MCZ starter is same except thickness changes to 0.094 ± 0.002

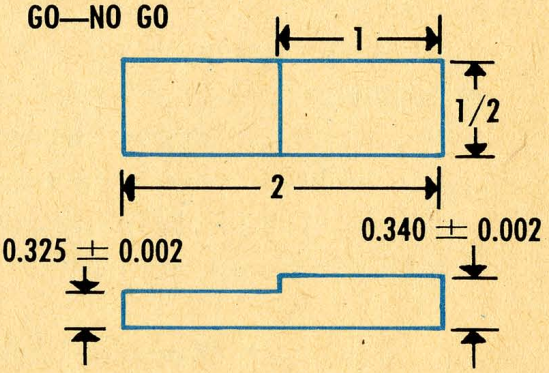
SWITCH CLOSING GAGE
LITE ON—LITE OFF



GAGES FOR STARTER MBP-4301 UT



ENDPLAY GAGE
GO—NO GO



NOTE: ALL DIMENSIONS ARE IN INCHES

The Great M34 Steering-Knuckle Brawl

Ever hear two little kids screaming "I kin too!" "Ya kin not!" "I kin **too**!!" "Ya kin **not**!!" at each other? That's how its been around here lately. The cause of the Donnybrook is the question of getting the steering knuckles together wrong on the M34. We hear that you can put the bushings and thrust button together upside down which tears up the inner oil seal. Then we hear that you can't. Somebody undertook to prove to us that it can't be done. Somebody else said if we did it **his** way, we jolly well could do it.

We don't really know. Moreover, believe it or not, we don't care. We do know that smart chappies put the darned things together with one hand. The other hand holds TM 9-1819B open to page 124, Fig. 56, so they can be absolutely sure the gismos all go back just where they belong. (Same picture can be found on page 164, ORD 9 SNL G-742.)

If ya can't locate a copy of one, the trick is that the **long** bushing and the little gismo that looks like a phoney nickel belong on **top.** If you even **try** to put it together wrong, you will likely louse up the oil seal in the attempt.

M34 FUEL STRAINER

Dear Editor,

The trouble bug has squirmed into some of our M34 fuel tanks. Silt accumulates on the surface and fouls the new porous-metallic-type standpipe-strainer.

The Grapevine has it that strainers are being cut off, or holes are being drilled in them when they become clogged.

We never did fancy being stranded on the road from a fouled fuel-pump or carburetor—our decision is to keep our strainer straining like it should. Here's the procedure we've been following.

1. Remove the fuel-tank cap and flush the gas line (from the fuel pump end) with an air-hose every 1,000 miles.

2. After the gas in the tank settles, remove the drain plug and pour off the sediment-saturated gas.

3. Every 6,000 miles, remove the strainer from the tank, scrub it with hot water and soap, then flush it with solvent.

SFC Ralph E. Ausherman
Fort Benning, Georgia

(Ed Note—If your gas comes from cans or barrels, drain the sediment from the tank weekly—or oftener. When reassembling the strainer in the tank, make that gas line* tight *between the strainer and the cover. It could come loose and cut off the gas supply.)

M41, M51, M52 5-TON TRUCK TIPS

CLUTCH CAP-SCREWS

In some cases, on the M51 dump truck, the factory neglected to remove the three cap-screws which hold the clutch plate in a partially released position for ease of assembly. Remove the clutch inspection plate and take a peek—if three bolt-heads are showing at the face of the pressure-plate housing, **remove them,** or they'll eventually cause clutch failure.

BRAKE AIR-PRESSURE

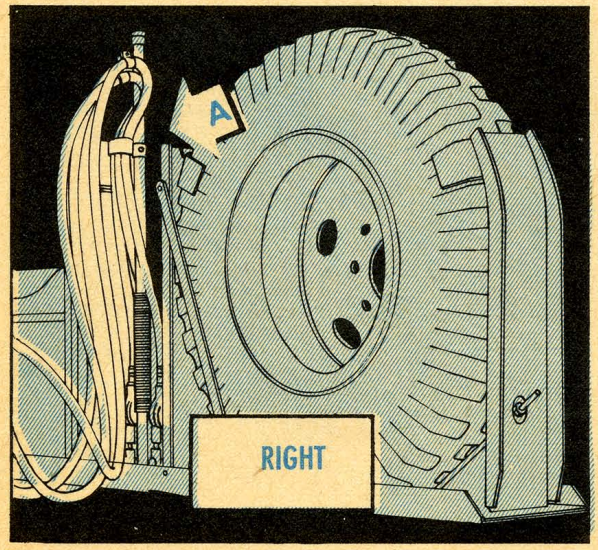
The governor cut-off point of the brake air-pressure-system for your M41, M51, and M52, is now between 115-120 psi by authority of change 2 to TM 9-837. (The TM formerly called for 100-105 psi.)

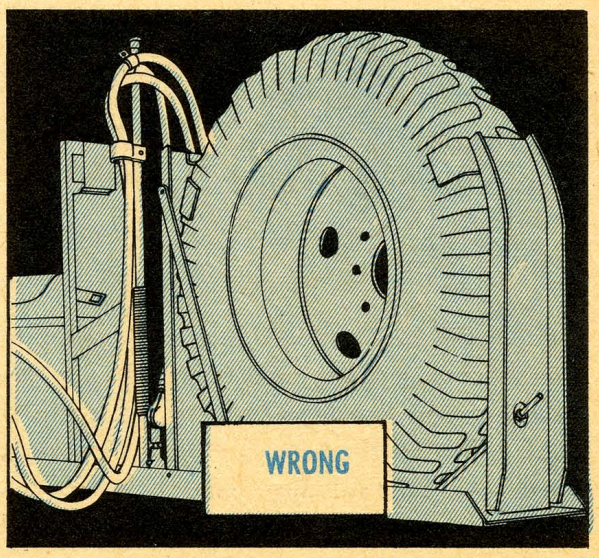
You'll have to get your air-compressor governors adjusted to bring the maximum cut-out pressure up to 115-120 psi. But some panel gages are known to be inaccurate so take your air-pressure reading with the air-test-pressure gage, 0-150 psi, Stock #45-G-140. This gage is listed in ORD 6, SNL-G 27, p. 147. If this gage isn't available use a gage you **know** is accurate when you make the change.

M52 TRUCK-TRACTOR HOSES

There's a right way and a wrong way for the trailer-brake hoses to be mounted on the 5-ton M52's hitch-hiker (shown below). As you can see, the wrong way would shorten the free-play of the hoses if you ever went into a real sharp jack-knife. So it might be worth the ten minutes it'd take to re-route the hoses.

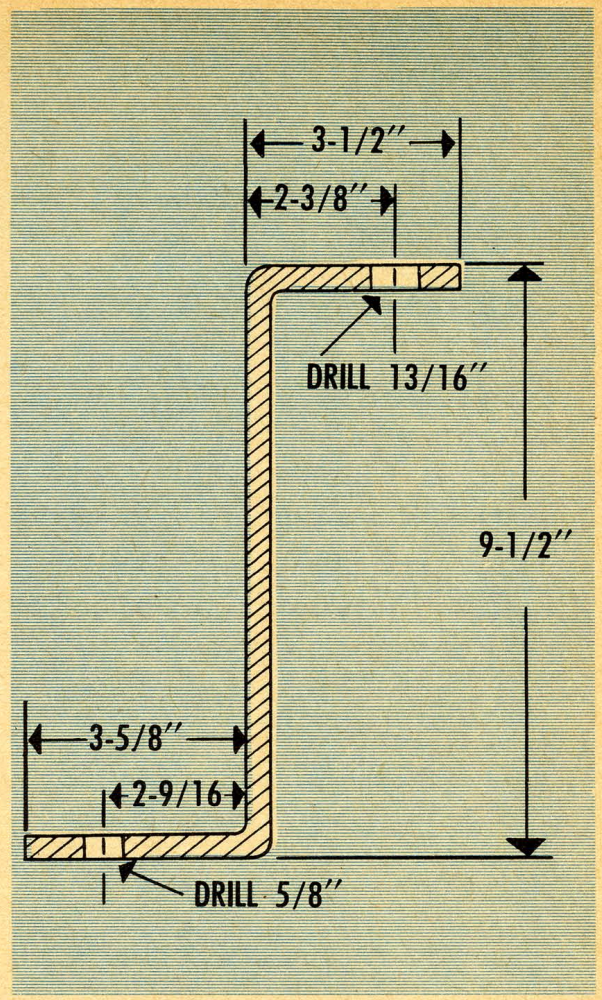
Just remove the guide at "A" on the hitch-hiker and release the hoses and cables. Then wrap the guide around the section of hoses and cables between the base and the upper straps, and bolt it right back where it belongs.

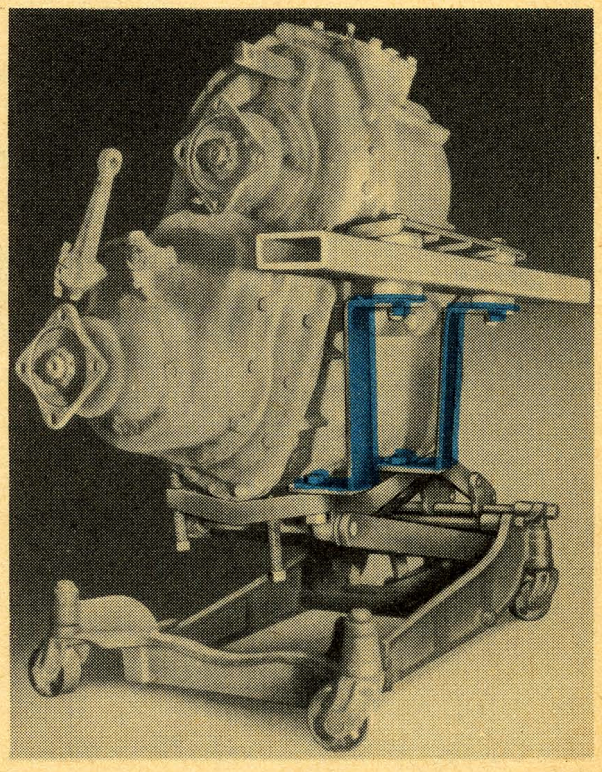




ADAPTER BRACKETS EASE REMOVAL AND REPLACEMENT OF M34 TRANSFER CASE

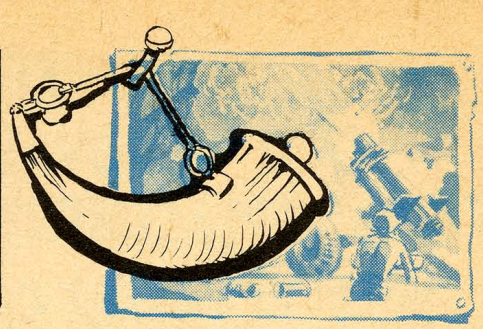
According to many a guy who's landed in the stockade, the MP's don't go along with the idea of speed and safety being bosom pals. But here's a case where they worked hand in hand. The case was tried at the Atlanta General Depot, Atlanta, Georgia. Adapter brackets, for the jack used in removing and replacing the transfer case of the M44 series, 2-1/2-ton vehicles, not only speeded up the job but offered safety as well. The brackets are simple and practical in design and can be whipped together from materials on hand by any field maintenance unit. Study at OAS on the disassembly and reassembly of the M34 showed that the use of these brackets eased the awkward job of removing and replacing the transfer case. And it's safe, too because the transfer case, being bolted snug to the brackets, can't fall from the jack while it's being jogged around.





Note that brackets are bolted to support member which gets removed along with the transfer case. Adapters were designd by **Cpl J. M. Williams** and **PFC C. Carlberg** Ord Auto Sch, Atlanta General Depot, Ga.

ARMAMENT & AMMUNITION



YOU CAN'T HOT-ROD A 155-HOWITZER

Trying to hot-rod a Howitzer is like attempting to make an elephant hang by its tail from a palm tree.

The old gun is set in its ways.

Monkey business like removing the safety latch may speed up operations. For a while.

Inserting the firing mechanism partway with the breech open, then slamming the breech closed, is another good trick. Until the safety plunger is banged against the firing mechanism and smashed to bits.

Sooner or later the old gun is going on a rampage with this sort of treatment—then watch its dust. Or flying breech blocks. Or anything else that may come sailing through the air.

There are some who don't like this kind of excitement.

So they follow the TM—and do like it says, both in servicing and operation. Keep your safety latch on, the book says—even if you're in a hurry! And be sure the firing mechanism is fully into the breech before you use it.

Makes for better shooting.

CALLING ALL M1 RIFLERS

STOP—WAIT—WOOPS DON'T TOUCH THAT DIAL

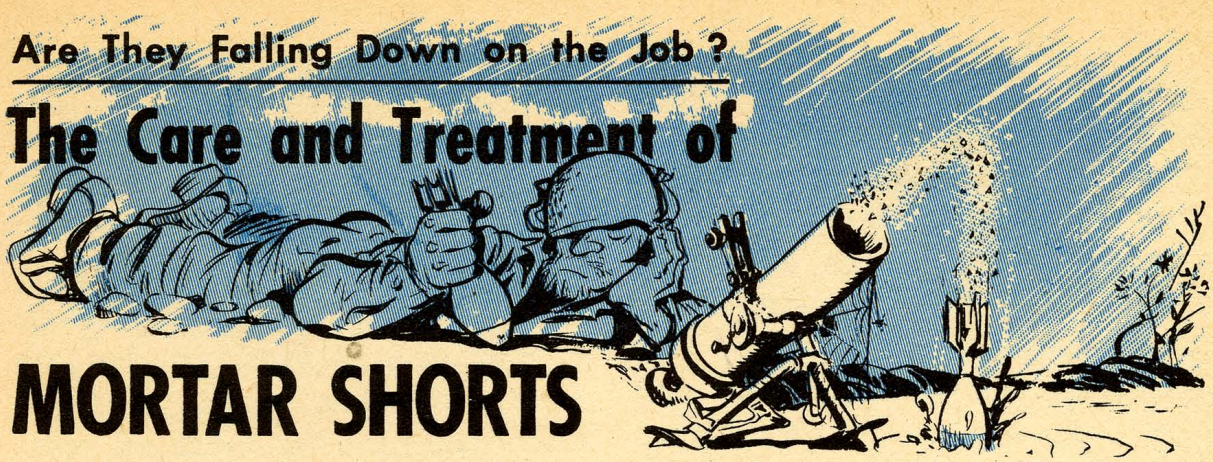
Before you toss away **one** elevating-pinion assembly (Stock No. 7312738) because the elevating knob is old and toothless, hear this:

Some day **you** may be old and toothless; but that's not the end of you. Likewise the elevating-pinion assembly still has a lot of life in it, even when the single tooth on the elevating knob is worn. So all such assemblies get sent back to Springfield Armory for reworking, and new and tougher ones get ordered through normal channels. Ya gotta keep doing this until all the assemblies with case-hardened teeth are out of the system.

There are no identifying marks —birth, battle, manufacturer's or otherwise—by which you can tell sturdy (file hardness) teeth from others. If they wear fast, they're not sturdy enough—if they don't, they are.

Are They Falling Down on the Job?

The Care and Treatment of MORTAR SHORTS



If offensive shorts are causing you to lose more friends than enemies, the answer is a switch over to "longies". Why be half safe? You got time to look this mortar stuff over while unpacking it, or before and between firing. If it's important, you'll do it. It's important. Here's how and what to check:

AMMUNITION

a. Moisture is bad.

Moisture is one of your biggest problems here. If you suspect it in your cartridge or increments, put them aside and check with your CO before firing or discarding them. Here's how to look for moisture:

Ammo packaging that's wet, with rust or condensation appearing on the inside, may indicate that at some time, water has gotten in and damaged the ammo. But if only outside of container is wet (no rust or condensation on the inside) ammo is all right to fire.

Rusty rounds may indicate wet cartridges. On the 4.2, cartridge can be removed and checked for swelling and moisture, but not on the others. In rain, outside of round will be wet, but if increments and cartridges have been kept dry, round can be wiped off and fired.

For **wet increments,** check the heat seals (or sealed edges) for breakage. Also, water won't mix with powder, and if the stuff is real wet, you can detect it floating inside the cellophane packs. This stuff you can pretty well tell by the condition of its cover. Watch it. Water can shrink your range, or even dissolve it completely.

b. Number of increments.

Having the wrong number of increments when you think you have the right number will give you a close burst of bright light to read by —a 50-80% loss of range, that is. On the 4.2, they may stick together and you'll take off two increments when you think you're pulling one. They can also fall off as a result of handling, jostling the shell, or hitting the tube. The chances that this'll happen are greater with the old stuff, which is stiff. Anyhoo, make sure they're all on, and on good.

c. Loose or damaged fins.

Fins when bent, deformed, de-

tached, or loose can cut your range 30-50%. So if the fins look damaged, are kinda loose, or just ain't, **don't fire the shell.** These not-so-goodnik fins can also drop off while the shell is in flight, and you'll hear a noise like steam blowing off in spurts. That's the time to duck. Trying to send up that left-over fin with the next round shows good "economy spirit," but it won't work. You'll probably misfire, and in any case it's much safer to dump it out of the tube before firing again. This whole danged rear-assembly could be misshapen because of mishandling somewhere along the line, so treat 'em gentle. (While checking the fins, you might as well test the whole shell for tightness.)

d. Lost cartridges.

Cartridges could, in rare cases, be missing. So make sure you've got one. They'll show up through the holes in the boom. Why shoot without shot!

e. Over-hanging increments.

Increments over-hanging beyond the shell—like a fat lady on a drug store stool—could go off at any moment, especially when the tube is hot (see below, MORTARS, d.). On the 4.2 ammo you're more likely to run into this increments-touching-a-hot-tube business, and the trick here is to center your shell and drop it straight into the tube. But in all cases, low-slung increments need an up-lift.

MORTARS

a. Wet or oily tube.

Oil or water in the tube causes incomplete burning of your propellant and annoying shorts to the tune of 80% loss of range. The excess oil in your tube will burn out after you fire the first few rounds, so if you know you have too much oil, compensate with greater range. If you don't know about it, find out. Also, when the tube attracts water like a rain spout, pour out the water, wipe off the rounds, and cover your muzzle when not firing in the rain (see AMMUNITION, a.).

b. Dirt, mud, grease or rust.

All this foreign grime should be cleaned out of the bore—but carefully. (See MORTAR, c.) This stuff will slow down the powder-burning rate and therefore reduce the amount of energy it gives off. Keep it clean and unclogged!

c. Hot, or burning tubes.

A hot tube or one with a fire burning in its base (say from leftover powder or a piece of smouldering bag material) will like-as-not "cook off" the powder in your new round, especially if you've got overhanging increments (see AMMUNITION, e.). Keep cool, and keep your head. There are three things you can do: cut your speed of fire; give your mortar a rest; or, if it's only **mildly hot,** swab out the tube. On the 81-mm M29, the threads on the outside help cool it; but on the rest of the

stuff, there's only you. 'Tis advisable that you keep it as cool as possible.

d. A pooped mortar.

A mortar that's been stretched from firing excessive charges, or even worn down from constant scraping out of rust, is no good, dangerous, shot, bushed, etc.! And, furthermore, it'll give you short ranges because of changes in chamber pressure. You can tell when your tube is in this fix by having it star-gaged, or if it's bad enough, you can maybe see it outright.

e. Cross leveling adjustment.

This adjustment on your bipod can become loosened from firing vibration. Yes, it can. Check yours and see.

f. Ground; wet, dry or rock.

Ground has an important effect on your mortar. It isn't "just there." Give the mortar time to settle before "fixing" your range. If you're on jagged rock, keep checking your range and deflection, 'cause it could change. When ground is moist and soft, your mortar will seat deeper on the first few rounds; it'll give you consistently shorter ranges; and will move about. Firm ground with just a bit of moisture is your best bet, if you can find it.

TEMPERATURE BELOW ZERO

If you happen to run into this unpleasant stuff (commonly called cold), you can figure on a ballistic difference in your shell, and possibly on incomplete burning of your powder, and this means "shorts." Cold seems to affect your powder and charge; and the effect is exaggerated in your increments. You could get a 10% range-loss because of cold. **But,** it will not be a constant loss, and you can't count on it. The best thing to do for first-rounds in extreme cold and rain is to make allowances in your range table for shorts. In compensating, fire mortar **definitely long** rather than **definitely short,** until you get a good reading on it. So-o-o, the lower the temperature, the lower the boom.

Since larger caliber weapons feel a greater effect from cold, mortars where this counts most (i.e., the 4.2 inch mortar) are supplied with information as to safe temperatures and approximate performance.

Also, in cold your **primer** may have a tendency to blow out and remain in the tube where it's warm. If these comfort-conscious primers aren't dumped out, you'll either misfire—if you're lucky—or the whole thing'll blow and it won't be cold no moe.

SIGHTS

Check frequently for accuracy, especially if they're bent, rusty, out of line, or if you're seeing double—through the sights, that is.

Note: If too short shorts are about to put you in a tight spot (190 ft. is enough to arm the fuse) take off—groundwards. Also, whenever in doubt—fire long.

FIRE CONTROL

SLANT-RANGE

When you're setting up an M9 directed battery, here's a quicky for checking the slant-range from the altitude converter (or radar) to the D amplifiers in the computer.

Looking at the computer's adjustment panel, set the +D amplifier at zero and move the selector switch to STATIC TEST Next, turn the range indicator on the altitude converter to zero. Then back again to the computer to turn on the +D knob (M3A2) or toggle switch (M3A1). Check: the answer you get should be the same you transmitted and the zero-set meter at the computer should read zero.

If it doesn't read zero, turn the range indicator at the converter until the computer's zero-set meter points to zero. Then move the converter's range-dial-pointer to zero. As easy as that, you've got the right slant on things.

And at no extra cost, this helps in checking the position of the brushes on the range potentiometer in the converter, which depends a lot on correct slant-range-dial readings.

M33 GENERATOR FAILURE

Walking off leaving your M33 on and its generator working during a lull can sure foul you up. The generator is a power machine set to produce 30,000 watts of A/C power at 400 cycles per second. And though there's no fightin' and fussin' from overhead, like a firefighter at a fire station, it's up to you to hang around, nurse your equipment and be ready for maybe.

When and if the generator goes geplunk, the slow-up of the electric-maker causes a slowing-down of the current frequency through the system. Transformers in the M33, set for 400 cycles, can't take the lower pace. It burns them up in the windings, leaving a whole battery of guns in the lurch.

If you're around when it happens, you'll know the generator's degenerating when the lights start to dim and the motor hum dies down. At that point turn the radar power and main switch off in the set and then go see what made it do what it did. But being around the set when it happens is the first ounce of prevention.

M9 DIRECTOR
Setting X and Y Brushes at 90°

Like most everything else, checking and setting the tracker azimuth X and Y brushes exactly 90° to each other, without the time and equipment of a null voltage test set, is easy if you know how.

Here's how.

First make sure the adjustment panel on the computer is set right, using your good eye to zero-set the amplifiers. If it's OK, turn the selector switch to TRACKER TEST on the M9A1, or PRESENT POSITION TEST on the M9A2, and go on from there.

Set the tracker azimuth-dials at one of the four points of the quadrant (0, 1600, 3200, or 4800 mils), and note the dial reading on the azimuth-servo dial of the computer. Reverse leads 1 and 2 at TS-6, on the X brush-arm of the tracker azimuth-potentiometer. The X and Y brushes are at 90° if the computer azimuth-servo-dials differ exactly 1600 mils from their original reading.

Should the difference between the dial readings be other than 1600 mils, you've got to loosen either the X or Y brush support-arm at the tracker and move it until those dials actually differ by 1600 mils. Follow this by tightening the brush support-arm clamping-screws (be careful not to upset its position) and return leads 1 and 2 of TS-6 on the tracker. Look again—if your azimuth-servo dials read once again what you originally noted, your brushes are 90° apart.

But if the information of the computer-servo dials still doesn't agree exactly with the tracker azimuth dials, loosen the hold-down screws on the tracker dials, make them agree with the computer dials, then tighten the screws.

LOOSE HEADSPACES on the 155-HOWITZER

Too much haste in getting the firing mechanism housing screwed into position on your 155-Howitzer can sure screw up the works.

Fidgety fingers only too often leave a loose headspace during firing. A loose headspace is like a hole in the head. Nobody needs one. It makes the primer split and stick. Fragments from the primer then get in their dirty work, causing the firing mechanism to stick in the firing housing.

After that, even the sky may not be the limit.

For those who don't like to live too dangerously—it pays to take time out to get the firing mechanism housing in right. Nothing to it, just follow instructions on page 159, TM 9-331.

ARMY AIRCRAFT

LITTLE THINGS COUNT

Before getting into the little tips on how to keep 'em flying, how about a word on those UR's. No matter what you think about it, the Powers-That-Be beg for UR's to be letter perfect—saying that they can't always process incomplete forms. SF 700-45-5 authorizes only UR Form AF54—when reporting on all air items and components (except power plants) use TO 00-35D-54 as a guide, TO 00-35D-54B as a guide for power plants. These are the bibles until you hear differently.

L-17B TACK-WELD CRACKS

Please to keep a careful eye on your **L-17B's** landing gear, both main and nose, with particular attention to the tack-welds on the casing assembly. These tack-welds are used during fabrication to hold the assembly together for furnace-brazing, and cracks in the tacks indicate failure or partial failure of the brazed joint. Replace 'em!

L-19 USING THE WRONG POT?

We hear of people swearing up a storm, trying to adjust an **L-19** carburetor and get the engine running right. We also hear that their ears go red like a stop light if they find they've been using an L-17 pot on an L-19 engine. These carburetors look almost exactly alike, and will fit the mounting flanges. Unfortunately, that is as far as the resemblance goes—they are **not** interchangeable. The one you want for the L-19 is PS-5C Bendix, 391318. Accept no substitutes.

NEW PROTRACTOR

There is a new all-metal protractor (P/N 571600) replacing the plastic job (P/N 571630) which tended to warp. It is now in the mill and will be available directly. The tech-orders are being amended to cover it, and it will be in the new tool kits.

SPARK PLUGS

From here on out, the LA-47 spark plug will be the only plug for 0-355-5 engines. TO 03-5E-3 will be amended to cover, and will be out in a couple of months.

L-19A FLAP CONTROL

If you set your **L-19A** Flap-control cables to the lowest allowable tension, as per TO 125LAA-2, the quick-disconnect will sometimes catch on the PK screws that hold the inspection plate on. New dope says set to a minimum of 35-pounds tension, and replace the inspection-

plate screws with shorter ones.

L-19A ELEVATOR BELL CRANKS

Eff'n you can't get the correct adjustment on your **L-19A** elevators there's a good chance that the tolerances on the holes where the elevator is attached to the elevator pylon are giving you troubles. Try loosening the attachment bolts, lining up the elevators with each other, and pulling the pylon as far back as it will go. Then tighten up all around. This should do it, but if not, you can re-adjust the bell-crank stops.

LC-126 DOOR HINGES

Too many people have been treating the door on the **LC-126** series aircraft like the door on pappy's barn, with consequent failure of the hinges or the stops or both. A stencil has been recommended, warning people to open it by hand all the way out to the stop instead of allowing it to swing out freely. ("Take it easy, Wheezy!")

L-19 GENERATOR TERMINALS

If you have an **L-19** with an 0-4 type generator, best you wrap the generator terminals with strips of plastic tubing or similar material to keep dirt and foreign matter from shorting them out.

L-19 BAGGAGE COMPARTMENT

Some of the plastic liners of the **L-19's** baggage compartment have been splitting, letting insulation spill out. Shoulder-harness cable seems to be to blame. Remedy: replace the short reinforcement on the rear of the panel with one of hard fabric or leather, 3" wide from top of cut-out to bottom of panel.

PROP TIPS

A number of reports tell of people who are stretching the field repair of propellers just a leetle too far. You sort of hate to pull a good-looking prop because of one deep nick, particularly if the nick is just a fine hair past the legal limits—**however,** best you do, best you do.

The TO's, (AN 03-20 series) give you all the leeway there is, and if your damage exceeds the limits set down, by all means replace the prop. Too much metal removed in buffing out nicks will unbalance the prop, and that makes the front main-bearing very unhappy. Severe engine damage will result from flying an unbalanced propeller for any length of time.

This is not to say that you can't fly Matilda back to the shops, but that's all, Bud.

L-19A STATIC GROUNDS

Dear Windy,

We seem to be having a lot of breakage on our tailwheel static-ground wires on the L-19A's, got any ideas?

Lt. L.O.R.

Dear Lieutenant,

TO 1-1-123 says you will get better results if you locate your L-19A's static wire on the starboard main-landing gear.

Windy

TACH CABLE FIX

Dear Windy,

On our LC 126C's we are having troubles with our tachometer cables, they keep wearing out on us. I think myself the darn thing is too long, and that if it were shortened and re-routed, it might give longer service. What do you think? We have found that in the absence of replacements for these cables, we can adapt a speedometer cable from the motor pool and go back to flying.

M/Sgt S. A. M.

Dear Sergeant S. A. M.,

As it used to say on the Condolence Tickets, "Your troubles are absolutely unique." Believe it or not, yours are. There are only five known examples of an LC 126C with metallic tach-cables in the whole Army. The rest of 'em have electric tachs. The cable in your ship is made long on purpose to allow that swinging engine-mount to operate. You should form a gentle loop in that cable as you swing the engine back into flying position.

Windy

REMEMBER THIS SLOGAN

Dear Windy,

Years ago, in the operations office of an airline, I saw a slogan that has become a creed of mine:

Aviation itself
Is not inherently dangerous—
But like the sea,
It is terribly unforgiving
Of any carelessness,
Incapacity,
Or neglect.

I wonder how many men who maintain aircraft realize the trust and responsibility placed in them—or realize that the lives of many, depend upon the

integrity of one?

James B. Misner
Washington, D. C.

Dear Mr. Misner,

You have said a mouthful—and that ain't prop-wash.

Windy

MORE ON L-19 WING HEAVINESS

Dear Windy,

I have found a number of cases of wing heaviness in L-19 aircraft caused by incorrect rigging of the flaps and ailerons. The wing heaviness is (sometimes) caused by loose flap-cables which allow one flap to "droop" a little farther than the other.

Flap cables should be tightened sufficiently to hold the flaps snugly against the upper stops—but not overtightened. After the flaps are properly adjusted the ailerons should be adjusted to streamline with the flaps and not the wing tips (control stick in neutral). A slight bend of the aileron trim-tab should now correct any remaining wing heaviness.

Stanley L. Novak
Anniston, Alabama

Dear Mr. Novak,

You are so right—and if this doesn't correct your troubles, give Betsy the whole treament as per PS #7, page 302.

Windy

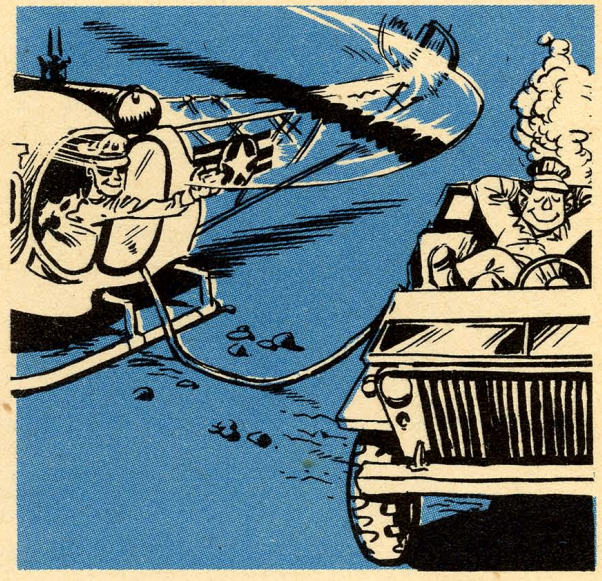
WINTER WINDMILL-WINDER

Dear Windy,

While on "Snowfall Maneuver," in the absence of the Auxiliary Power Units to help start our engines, we used a long cable (similar to the Slave Kit cables). We put a Jeep plug on one end, and the appropriate aircraft plug on the other. We'd drive our M38 (or any 24-volt vehicle) out to the ship, parking well out of the prop or rotor orbit, and couple up.

Running the Jeep on the first notch of the hand throttle gives plenty of zap to crank the aircraft. Please to be sure you get the polarity right when rigging the cable.

"The Gang"
Snowfall Maneuver



With proper aircraft plug on the slave cable, your 24-volt vehicles can crank cold aircraft.

Dear "The Gang",

Pretty sharp, up there in the cold—that's really using the old noodle. Like the great man said—the best tools ya got are those on hand. And like you men said, get the polarity right, and you've done the job.

Windy

SUPPLY & DIRECTIVES

MECHANIC WITHOUT TOOLS

Seems unreasonable that a T/O&E will give you a mechanic—and no tools. But it makes sense if you stop to realize that a 2nd-echelon tool-set is an awful lot of equipment for a headquarters company with less than 25 vehicles. It's usually needed more in another outfit for maintenance—and Uncle would prefer to keep it that way.

So the mechanic gets a crack at practicing to be a wheel and if he's got the right slant, he'll keep plenty busy scheduling and supervising maintenance, dispatching vehicles and a lotta other stuff. If the urge for a tool set is still too strong to ignore, your CO might authorize Post Ordnance to issue a mechanic's set.

HELICOPTER-TECH-ORDER

01-11OHA-32, 25 March 1952, "Installation of Steel Safety Straps on Engine Mount Assembly—H-13 Series".

01-11OHA-33, 8 April 1952, "Inspection of Main Rotor Swashplate Assembly—H-13 Series".

01-23OHF-26 (Interim), 24 March 1952, "Reinforcement of Tail Cone and Tail Rotor Pylon—H-19A Helicopter".

00-25-4 Table I, DA(TT) 313445 (Unclassified), dated 19 March 1952, "Army Aircraft Reconditioning Time Interval H-13 Series: 48 mo.; YH-18A, H-19A, and H-23 Series: 36 mo".

00-25-4 Table V, TT Hq, AMC, dated 26 March 1952, "H-19A Army Helicopter main gear box time: 300 hrs. if installed as original equipment".

MORE COMMON SENSE NEEDED DURING BREAK-IN

Reports of burned out bearings on vehicles in the new fleet, indicate some people are ignoring the fine print on the lube order's masthead, by trying to let them go the full 6000 miles in some cases with no thought to crankcase condition. It seems of top importance to check oil conditions on new vehicles every so often for signs of sludge, grit, metal fragments and other engine-damaging muck that might be your warning of trouble to come. Remember that continuous idling can stew up a mess of sludge a lot faster than warmed-up running can evaporate the condensed water-vapor.

SNL SUPPLY CATALOG

What's in a name? SNL, Supply Catalog—no matter what you call it, it's still a listing of materiel by major noun. Truth of the matter is that the term "SNL", meaning Standard Nomenclature List, became obsolete about 1943 when the catalogs became simply Supply Catalogs. Since then SNL has been no more than a part of the Ordnance classification group designation—some of these classifications don't even have Supply Catalogs so the assumption that all supply catalogs are SNL's and in turn all SNL's must have supply catalogs can sometime be confusing. Besides, what if you'd change your branch of service? Best we learn to call a spade a spade and a supply catalog a supply catalog

WHAT'S AT RARITAN

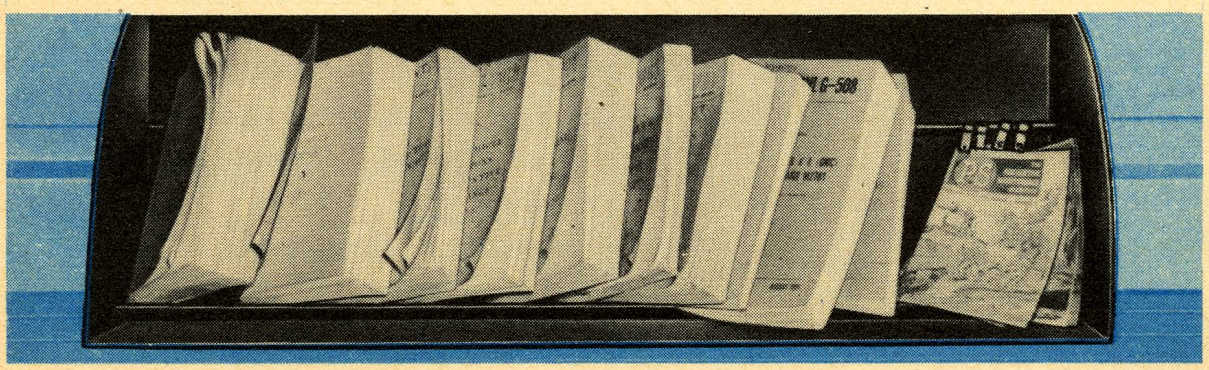
Ord Corps Manuals (ORDM's) are available at Raritan Arsenal Publications Division—just requisition them in accordance with OCTI 100-6-51, Feb 51. But don't try this on your DA publications. These have to be gotten thru AG according to SR 310-90-1, and when these requisitions go to Raritan it causes all kinds of trouble and some delay for you in getting them.

Manufacturer's Manuals and parts lists for commercial vehicles and machine tools can be requisitioned from the Chief of Ordnance, Washington 25, D.C., Atten: ORDFM-Pub.

PUBLICATIONS RACK

Motor Pool TM's are hard to keep. Lt. Joseph W. Kalinowski, Motor Officer, Headquarters, 78th Combat Battalion at Fort Benning has found a fix. It's a rack that holds the publications securely in place.

It's made of sheet metal with a steel rod running its full length and held secure by a wing nut on one threaded end. Each TM is held in place by a steel clamp which has a drilled hole to fit the rod. A typed index of the contents is pasted on a piece of sheet metal hinged to the rack. All materials are from the scrap heap—fabricated, assembled, and painted OD.



FIRST and foremost, there are no personal subscriptions (at any price) and there are no copies sent direct to individuals.

This is so the greatest number of individuals will get to see the copies that go to all using units. However, a plentitude of copies have been thoughtfully provided for the front office to hoard in its locked files for when your back-shop and front-line copies get tattered and smeared beyond legibility.

All copies are distributed through AG depots, to Publication Sections, then to your unit according to these authorized allowances (which appear in brief on the first page of each issue). Guard Units get copies from State Guard headquarters, and ORC Units from their Military District Hqrs.

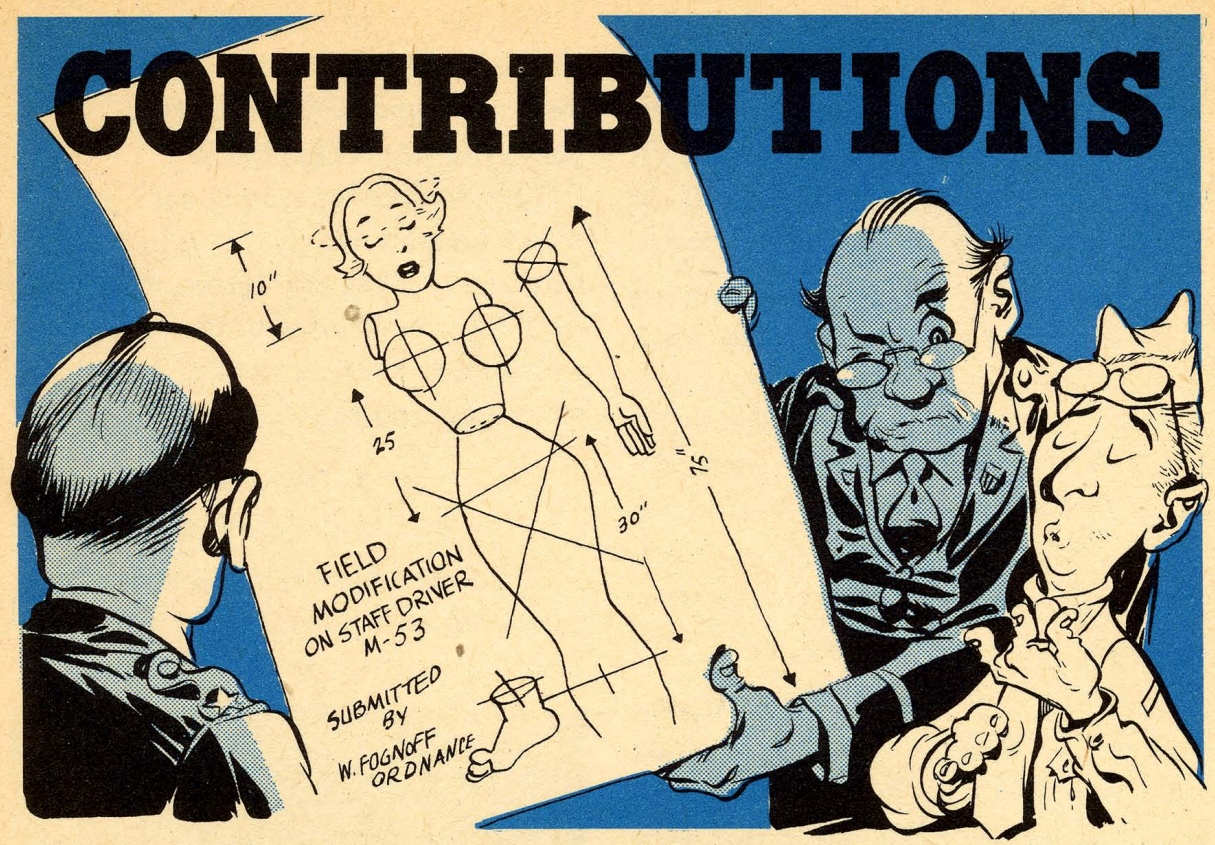
If you need more than you're allowed for any certain reason, requisition your Pubs Section each month in advance. If you need copies of back issues, write direct to Editor, PS Magazine, Aberdeen Proving Ground, Maryland.

SYMBOL	UNIT, ORGANIZATION OR INSTALLATION	COPIES
A (ORD OFF)	Hq of Armies	100
AFF	Office, Chief, Army Field Forces	10
Admin & Tech Svc Bd	Administrative and Technical Service Boards	10
Ars	Hq of arsenals, plants, works & Army Installations of Mfg	25
BRIG	Hq of brigades	5
Base Comd	Hq of base & isl. commands & hq, US Army Forces, except under "OS Maj Comd"	5
Bn	Hq of battalions	5
Co	Hq of companies or similar units	12
Co 9	except Ordnance, which get	20
Co 17	and Armored which get	20
Co 55	and Transportation Corps which get	20
CHQ	Hq of Corps	5
DIV (ORD OFF)	Hq of divisions (including Trng Div)	50
DIV 17 (ORD OFF)	Except Armored Division	100
Dep	Hq of depots, incl. gen. depots, & sections of gen. depot	10
Dspln Bks	Hq of disciplinary barracks	25
Dist	Hq of districts	3
Mil Dist	Hq of Mil Dists within Z1 (ea state)	100
Div Engr	Division engineers (C1 2 installations)	5
FT	Hq of Forts	5
GH	Hq of general hospitals & centers	5
GH Library	General Hospital Library	25
MDW	Hq Military District of Washington	5
OSD (ORD OFF)	Overseas supply divisions of POE's	2
OS Maj Comd (Ord Off)	Hq of overseas command directly under DA	100
POE (ORD OFF)	Hq of POE's	3
PRGR	Hq of proving grounds	5
PRGR 9	Hq of Proving Ground Ordnance	25
Proc Dist	Hq of procurement districts	3
REGT	Hq of regiments or groups	10
Rct Sta	Hq of recruiting stations	3
PMS & T	PMS & T's at ROTC units	5
PMS & T 9	PMS & T's at ROTC Ordnance units	25
RTC	Hq of Replacement Training centers	100
Sep Bn	Hq of separate battalions	10
Sch	Hq of general & special service schools	25
Sch 9	Hq of general & special service Ordnance schools	50
Sep Co	Hq of separate company or similar unit	15
Tech Svc (Maint Br)	Off of the head of each Tech Serv	5
Tech Svc 9	except ORD	250
Tng Div	Hq of training divisions	50
USMA w/schools	Hq of U.S. Military Academy	25
Hosp	All Hospitals	15
NG		Special
ORC		None
Rct. Dist	Headquarters of recruiting districts	3

SPECIAL DISTRIBUTION

1. Preventive Maintenance Office — APG, (Editorial Staff & Preventive Maintenance Program functions)	2000
2. Ordnance Tank-Automotive center, Detroit, Michigan	250
3. Pentagon, as prescribed by TAG, except AC of S, G-4 Maint Br	10

CONTRIBUTIONS



WINCH-CABLE PM

Dear Editor,

Since we seldom use our winches, we've been cleaning and oiling them only at the semi-annual inspection. It's very sandy here so after cleaning, oiling, and rewinding the cable, we cover the cable with oil-soaked rags and secure 'em with masking tape to keep out dirt and water.

This has worked out well for us. In fact, the cables are in as good shape today as they were 15 months ago when we drew the trucks.

We've only used our winches about 10 times in 15 months and then only on the shop truck-train to instruct drivers in the proper use, care and maintenance of the winch and its cable.

Cpl J. S. S. and Pfc C. J. A.
Fort Bragg, North Carolina

HOOD SAFETY-CATCH

Dear Editor,

Here's another idea that PS readers might find helpful.

I'd been having trouble with the hood safety-catch on the 2-1/2-ton M34. It would bound off the radiator or brush guard and strike the radiator fins and core if the hood was dropped as little as 3″. In time this would puncture the radiator tubes.

So I removed the complete hood-safety-catch assembly, filed and removed the pivot pin and spring, and had our welder build up about a 1/8″ bead of metal on the hood catch to limit its backward travel. Then I reassembled the unit, squeezed the pivot pin in a vise, installed it on the hood, painted it, and it works like a charm.

But just a word of caution—a little

filing may be needed on the weld; also, it's necessary to paint with a primer or an OD rust-inhibiting paint since some of the cadmium plating is burned off during the welding process. A little oil on the pivot now and then, will help.

Sgt D. S. Roberts
APO 46, New York

(Ed Note—A field fix on the safety catch seems to be in order, and this looks like a good one.)

WATER HOSE

Dear Editor,

Several TO/E units at Camp Cooke do not have hoses with which to wash their vehicles. This may be a common situation, but they can be requisitioned by authority ORD 3 SNL J17, dated Mar 47: Stock No. 33H1008, Hose, water, braided, ID 3/4", 50 ft. length, w/couplings. These hoses are M/R property.

F. L. Gibson, OCT*
Camp Cooke, California

*Ordnance Corps Technician

REAR-WHEEL OIL SEALS

Dear Editor,

This rig is our answer to rear-wheel oil-seal damage during wheel disassembly.

Scrap materials used—Pipe: 2 pieces 18" long and 2 pieces 28" long. Ball bearings: 3 (complete assemblies). The diameter of the pipes: To fit snug through the center of the ball bearing assemblies selected.

The 18" pipe-lengths serve as axles and the bearings as wheels. Welding the four pipes to form a frame completes the job. (Fig. 1).

To use the rig, simply jack up the vehicle, and remove the axle and the axle nuts. Roll the frame under the dual wheels, then lower the jack so the wheels **just rest** on the 28" lengths of the frame, and roll it out easy.

Sgt S. Tharp & Sgt P. Harlin
Fort Leonard Wood, Missouri

(Ed Note—Thanks for sharing your good idea with PS readers.)

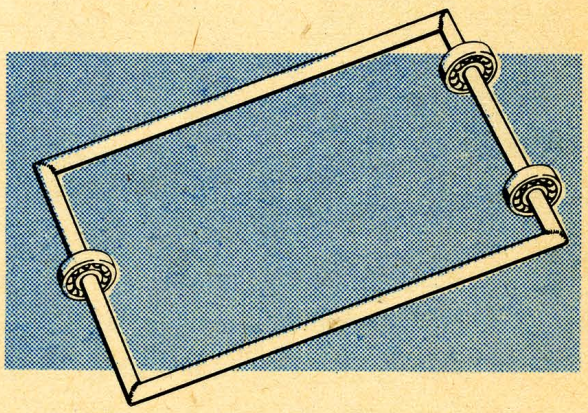


Fig. 1—Dual wheels can be rolled out on this frame, which means less damage to oil seals.

M38 REAR-AXLE VENTS

Dear Editor,

Rear-axle vents on the M38 often leak excessive amounts of gear oil. An officer here suggests a good fix.

Remove the 90° vent from the housing cover and install a pipe plug in the fitting hole. Then spot weld a 1" suqare piece of ⅛" stock about 1" from the housing flange and 2" left of center. And last, drill and tap for ⅛" pipe thru the welded piece and cover, and install a straight type axle vent in it.

This will prevent the accumulation of gear oil in the vent with resulting increase in vent capacity.

Mr. Howard P. Leary, OCT
Fort Story, Virginia

(Ed Note—Could it have been too much lube that made the axle-vent stick?)

M34 DRAIN-PLUG HOLDER

Dear Editor,

About this drain plug on the M34 flywheel housing (it's put in to ford and taken out for dry land operation) we find them highly elusive gadgets, generally missing when needed. My suggestion is this: Get a pipe collar of the same size as the plug, cut it in half and weld the half collar to the frame near the flywheel housing. When you take the plug out of the flywheel housing, run it up snug in the collar, and it will be there when you need it. You won't have to move or crawl out with the plug in your hand, and it will be available and handy when you want it.

Sgt R. J. Kelly
Camp Drum, New York

(Ed' Note—Sounds OK to us, clever too.)

OIL-PAN TOOL

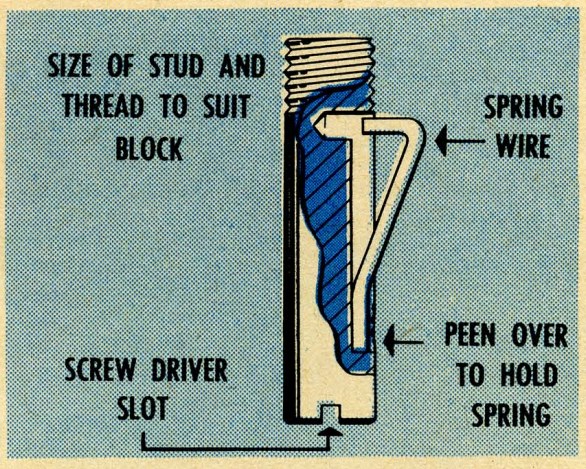
Dear Editor,

In line with the little contribution in your September issue, page 60, on the idea of welding cap screws onto screwdrivers for installing oil pans on the M34, I'm inclosing a rough sketch of a gadget I've had in my tool box since way back in the early 20's. I always carry a few sets in different sizes.

Here's a brief outline of its use and manufacture: The spring can be secured to the stud by peening it in the slot, or cutting the slot a trifle large and brazing it in. The end of the spring that slides in and out of the hole should be so formed that the end does not come completely out—better support for the pan. The gasket can be placed either before or after the studs are installed (the distance from the gasket or block to the spring must be a trifle wider than the thickness of the pan rim or flange).

Using two of these gadgets, just screw them into the block, slide the pan up over the studs until the spring snaps back out, and then install the cap screws with no pain or strain. Easy does it!

L. M. Willis
APO 958, San Francisco



Two of these gismos take the place of a pair of hands when installing the M34 oil pan.

PS ON SMALL-ARMS LUBE

Dear Editor,

We got swell results in way below freezing (and I mean **way** below) in

Alaska, by mixing an equal amount of anti-freeze with our JAN-L-644. With this concoction we could fire all day without jamming.

Sgt J. E. Keen
Alaska

(Ed Note—What the Sgt's got is a mixture which acts as a carrier for his JAN-L-644, and allows him to get a thinner coat of lube. Like it says in PS No. 7, a **clean,** *and* **very lightly oiled** *rifle is the answer to firing in the cold—So no need to bother with strange mixtures except in strange situations.)*

SENDING-UNIT NIPPLE

Dear Editor,

The brake pedal strikes the sending unit of the oil pressure gage on a few of the M38's we have, preventing the full application of the brakes after the brake shoes get worn down slightly. A man in my shop found that if you replace the nipple that connects the sending unit to the engine block with a shorter nipple, it will put the sending unit out of the way of the brake pedal, allowing the brakes their full stroke.

Cpl Robert K. Stiles
Fort Knox, Kentucky

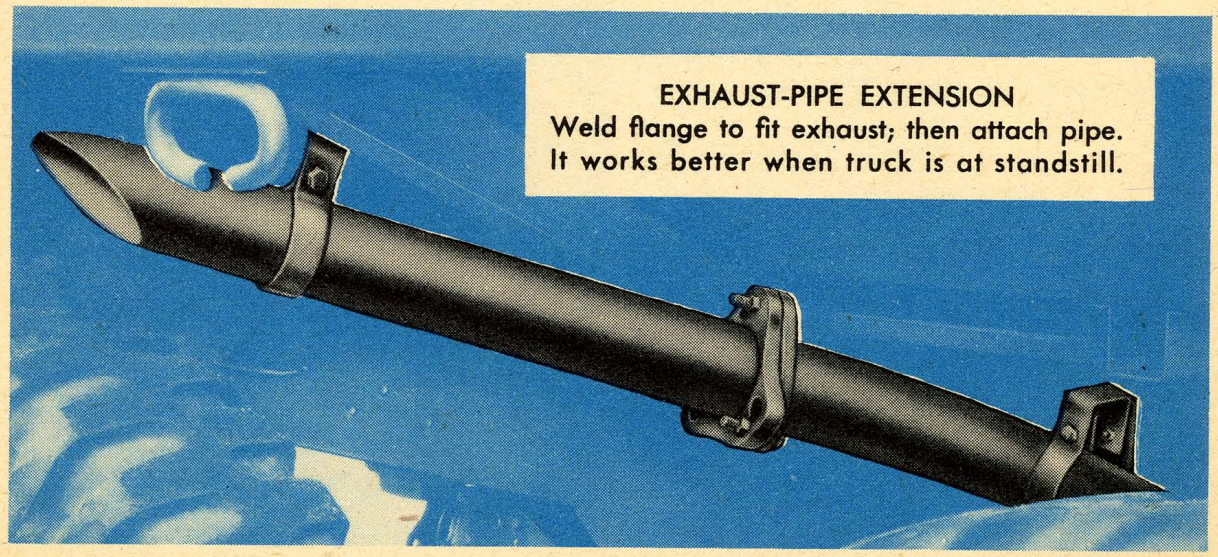
EXHAUST-PIPE EXTENSION

Dear Editor,

We've found that the exhaust pipe on the 2-1/2-ton M34 (Reo's or Studebaker's) is too short, letting all the exhaust gases seep through the tarpaulin and causing ill effects on the men riding in the cargo bed. What we did was extend the pipe by welding a flange to fit the exhaust and then attaching a piece of pipe 2-1/2″ I.D. by 24″ long, tapered at the top end. We also used a support at the outer edge.

Sgt Stanley M. Erickson
Camp Rucker, Alabama

(Ed Note—Any fix that moves the fumes out of peoples faces ought to be considered. When PS tried this one it worked pretty good at a standstill, but threw even more fumes than usual into the cargo area on a deceleration. Best hold off wholesale applications 'til the right thing comes along.



EXHAUST-PIPE EXTENSION
Weld flange to fit exhaust; then attach pipe.
It works better when truck is at standstill.

Connie Rodd's BRIEFS

Pedal-link snap

The trouble with an accelerator pedal-link that snaps out of its rubber socket at the cross-shaft lever, may be an improper linkage adjustment. Try adjusting it so that the carburetor throttle is wide-open when the accelerator pedal is way-down.

Mortar fire

It goes without saying (but I wouldn't be a woman if I didn't mention it anyhow) that the range and direction of your mortar fire are subject to change on mighty short notice. So for those swift shifts, best you keep traversing and elevating mechanisms free of dirt, grit, and other breeds of clogging material—else you might have a tough shift.

M38 Wheel disc

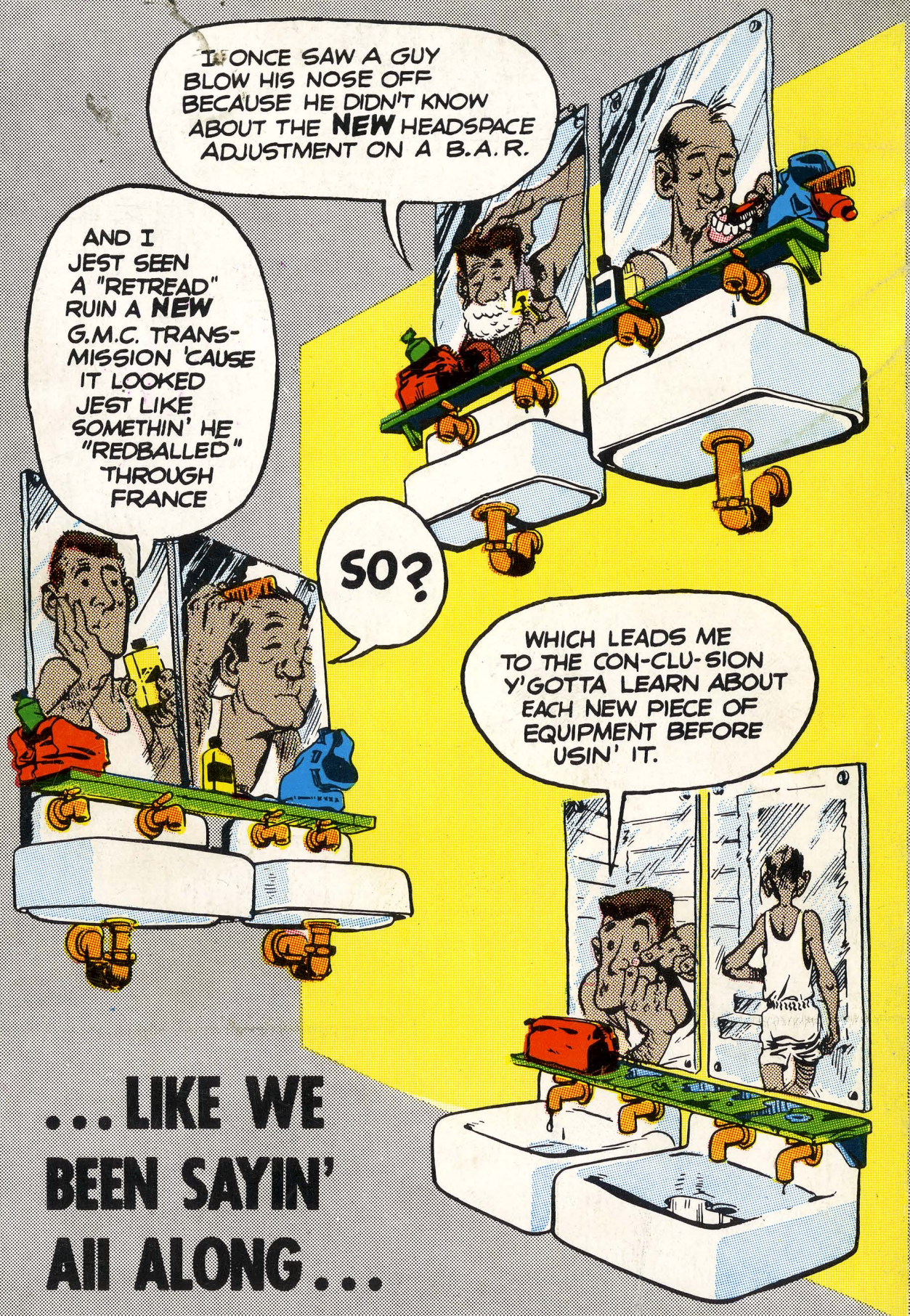
Somebody asked what the 1/8" hole in the M38 wheel, at the wheel-bolt circle, is for. The manufacturer says he put it there to help him identify the wheel from those used on civilian Jeeps. The M38's wheel-disc is made of slightly heavier material. You worried?

Busted battery-posts

Lifting your 12-volt battery by its posts with a battery strap can cause its downfall. With both terminals on the same end, the powerhouse may be tilted to one side, a post put to a greater strain than it was built for, and—post mortem.

Rifle lube

Lest you have forgotten, Lubriplate, the stuff in the little tube in the butt of your M1 rifle, is not the solution for your cold weather oiling problems. Its main feature is that Lubriplate sticks to its guns—and weather permitting, it will even freeze there. So use the stuff for what it was meant for: **salt water spray and rain at normal temperatures.** And for best operation at low temperatures (when it's too cold to rain) follow the simple rule: **keep 'em clean and lightly oiled.**


I ONCE SAW A GUY BLOW HIS NOSE OFF BECAUSE HE DIDN'T KNOW ABOUT THE NEW HEADSPACE ADJUSTMENT ON A B.A.R.
AND I JEST SEEN A "RETREAD" RUIN A NEW G.M.C. TRANS-MISSION 'CAUSE IT LOOKED JEST LIKE SOMETHIN' HE "REDBALLED" THROUGH FRANCE
SO?
WHICH LEADS ME TO THE CON-CLU-SION Y'GOTTA LEARN ABOUT EACH NEW PIECE OF EQUIPMENT BEFORE USIN' IT.
...LIKE WE BEEN SAYIN' All ALONG...